<table>
<thead>
<tr>
<th>No.</th>
<th>Individual Component Used During Blade Manufacture</th>
<th>Is PFAS Present?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PVC Foam</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>Adhesive VE Type A GT 60</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>GELCOAT UP TYPE A BRUSH RAL 7035</td>
<td>No</td>
</tr>
<tr>
<td>4</td>
<td>POLYESTER HAND LAY-UP GT80</td>
<td>No</td>
</tr>
<tr>
<td>5</td>
<td>VINYLESTER REPAIR GT25</td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td>GELCOAT HY TYPE D SPRAY RAL7035</td>
<td>No</td>
</tr>
<tr>
<td>7</td>
<td>ADHESIVE MMA GT 5 400 ML</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>PEROXIDE VE CAT WW RED</td>
<td>No</td>
</tr>
<tr>
<td>9</td>
<td>VINYL ESTER VARTM TYPE H GT150</td>
<td>No</td>
</tr>
<tr>
<td>10</td>
<td>EPOXY VARTM RESIN EPIKOTE RIMR135</td>
<td>No</td>
</tr>
<tr>
<td>11</td>
<td>EPOXY VARTM HARDENER EPICURE RIMH1366</td>
<td>No</td>
</tr>
<tr>
<td>12</td>
<td>ADHESIVE MMA GT10 400 M</td>
<td>No</td>
</tr>
<tr>
<td>13</td>
<td>LOCTITE 243</td>
<td>No</td>
</tr>
<tr>
<td>14</td>
<td>POLYESTER VARTM TYPE B GT100</td>
<td>No</td>
</tr>
<tr>
<td>15</td>
<td>POLYESTER VARTM TYPE B GT175</td>
<td>No</td>
</tr>
<tr>
<td>16</td>
<td>SIGMAFAST 278 BASE</td>
<td>No</td>
</tr>
<tr>
<td>17</td>
<td>SIGMAFAST 278 HARDNER</td>
<td>No</td>
</tr>
<tr>
<td>Category</td>
<td>Material Description</td>
<td>A</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Blade resin</td>
<td>POLYESTER VARTM TYPE B GT175</td>
<td>PEROXIDE VE CAT WW RED</td>
</tr>
<tr>
<td>Web resin</td>
<td>POLYESTER VARTM TYPE B GT100</td>
<td>PEROXIDE UP CAT FF VR 25/30 KG</td>
</tr>
<tr>
<td>Resin Hand lay-up</td>
<td>POLYESTER HAND LAY-UP GT80</td>
<td>PEROXIDE M-50 A</td>
</tr>
<tr>
<td>Adhesive for blade/Web/third web &amp; C stiffner (closing process)</td>
<td>VINYL ESTER VARTM TYPE H GT150</td>
<td>PEROXIDE VE CAT WW RED</td>
</tr>
<tr>
<td>Resin LECO</td>
<td>EPOXY VARTM RESIN EPIKOTE RIMR135</td>
<td>EPOXY VARTM HARDENER EPICURE RIMH1366</td>
</tr>
<tr>
<td>Resin Spar cap</td>
<td>VINYL ESTER VARTM TYPE H GT150</td>
<td>PEROXIDE VE CAT HH VR</td>
</tr>
<tr>
<td>Gelcoat spray</td>
<td>GELCOAT HY TYPE D SPRAY RAL7035</td>
<td>PEROXIDE UP CAT AA 25/30KG</td>
</tr>
<tr>
<td>Gelcoat brush</td>
<td>GELCOAT UP TYPE A BRUSH RAL 7035</td>
<td>PEROXIDE M-50A</td>
</tr>
<tr>
<td>Balancing materials</td>
<td>POLYOL TYPE A BALANCING MATERIAL</td>
<td>ISOCYANATE TYPE A BALANCING MATERIAL</td>
</tr>
<tr>
<td>Sigmafast 278</td>
<td>SIGMAFAST 278 BASE</td>
<td>SIGMAFAST 278 HARDNER</td>
</tr>
<tr>
<td>INTERZINC 697</td>
<td>INTERZINC 697 BASE</td>
<td>INTERZINC 697 HARDNER</td>
</tr>
<tr>
<td>Sigmadur 520</td>
<td>SIGMADUR 520 BASE RAL 7035</td>
<td>SIGMADUR 520 HARDNER</td>
</tr>
<tr>
<td>Top coat 12</td>
<td>TOPCOAT 12 RAL 9004 NON-CONDUCTIVE</td>
<td>TOPCOAT 12 HARDENER</td>
</tr>
</tbody>
</table>
Conforms to EU Regulation 1907/2006/EC as amended.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
   Trade name : PVC Foam Sheet
   Chemical Family/Name : Vinyl Polymers/Polyvinylchloride sheet
   CAS No. : 9002-86-2

1.2 Recommended use of the chemical and restrictions on use

1.3 Details of the supplier of the safety data sheet
   2 Shixiang Rd Shidao District Rongcheng, Shandong China 264309
   Vicell@126.com

1.4 Emergency telephone number
   +86 631 7336888 , or contact your local emergency telephone number

Identified Use : Wind blade/Panel of interior board

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

   Classification (REGULATION (EC) No 1272/2008)
   Not a hazardous substance or mixture.
   This product meets the definition of “article” outlined in the Regulation(EC) NO 1907/2006(EU REACH regulation) and is NOT intended to release the substances from article/product under normal conditions of use, so hazard communication obligations for substances in this product is NOT required by the regulation, however, this safety data sheet is provided as a courtesy in response to a customer request in accordance with the requirement set out in regulation(EC) NO 1272/2008, use or processing of the product not in accordance with the product's recommendations or not under ordinary conditions may affect the performance of the product and may present potential health and safety hazards.

2.2 Label elements

   Labelling (REGULATION (EC) No 1272/2008)
   Not a hazardous substance or mixture.

2.3 Other hazards

   Additional advice
   No information available.

SECTION 3: Composition/information on ingredients

3.1 Substances
Hazardous components

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLYVINYL CHLORIDE</td>
<td>9002-86-2</td>
<td>&gt;= 80 - &lt;= 100</td>
</tr>
<tr>
<td>Additive</td>
<td>Proprietary</td>
<td>0-20%</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : No hazards which require special first aid measures.

If inhaled : No need for first aid is anticipated.
If breathed in, move person into fresh air.
If unconscious place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : No need for first aid is anticipated.
First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.

In case of eye contact : No need for first aid is anticipated.
Remove contact lenses.
Protect unharmed eye.

If swallowed : No need for first aid is anticipated.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No symptoms known or expected.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No hazards which require special first aid measures.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Material will not burn. Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide). Use extinguishing measures that are appropriate to local...
5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting
- No unusual fire or explosion hazards are anticipated.
- Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products
- Hydrogen chloride gas
- Phosgene

5.3 Advice for firefighters

Special protective equipment for firefighters
- In the event of fire, wear self-contained breathing apparatus.

Specific extinguishing methods
- Product is compatible with standard fire-fighting agents.

Further information
- Standard procedure for chemical fires.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions
- Not applicable.

6.2 Environmental precautions

Environmental precautions
- Not applicable.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up
- Not applicable.

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
- This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions.
- For personal protection see section 8.

Advice on protection against fire and explosion
- No special measure is required under normal conditions of use.
7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Not applicable.

Advice on common storage: No materials to be especially mentioned.

Other data: Keep in a dry place. No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s): No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

The following occupational exposure limit is listed for Polyvinyl chloride granulas/powder it may form dust during the processing, this product should not present any exposure limit under normal conditions of use.

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLYVINYL CHLORIDE</td>
<td>9002-86-2</td>
<td>TWA (Inhalable dust.)</td>
<td>10 mg/m³ Inhalable dust.</td>
<td>EH40 WEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable dust.)</td>
<td>4 mg/m³ Respirable dust.</td>
<td>EH40 WEL</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Engineering measures

Not applicable

Personal protective equipment

Eye protection: Not applicable

Skin and body protection: Not applicable

Respiratory protection: Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : White Sheet

Colour : White

Odour : Odorless

Odour Threshold : No data available

pH : No data available

Melting point/freezing point : No data available

Boiling point/boiling range : No data available

Flash point : No data available

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Upper explosion limit : No data available

Lower explosion limit : No data available

Vapour pressure : No data available

Relative vapour density : No data available

Relative density : No data available

Density : 0.4-0.85 (water=1)

Solubility(ies)

Water solubility : Not applicable

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available

Auto-ignition temperature : No data available

Thermal decomposition : No data available

Viscosity

Viscosity, dynamic : No data available

Viscosity, kinematic : No data available
**MATERIAL SAFETY DATA SHEET**

<table>
<thead>
<tr>
<th>PVC Foam Sheet</th>
<th>SDS Number: RF111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visight Advanced Material Co., Ltd;</td>
<td></td>
</tr>
</tbody>
</table>

**9.2 Other information**

No data available

---

**SECTION 10: Stability and reactivity**

**10.1 Reactivity**

No decomposition if stored and applied as directed.

**10.2 Chemical stability**

Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**

- Hazardous reactions: Product will not undergo hazardous polymerization.

**10.4 Conditions to avoid**

- Conditions to avoid: Keep away from heat, flame, sparks and other ignition sources. Avoid fire or elevated temperature above 250° C.

**10.5 Incompatible materials**

**10.6 Hazardous decomposition products**

- Hazardous decomposition products: If burned, it will generate carbon dioxide, carbon monoxide and hydrogen chloride.

---

**SECTION 11: Toxicological information**

**11.1 Information on toxicological effects**

- Information on likely routes of exposure: Inhalation, Skin contact, Eye Contact, Ingestion

**Acute toxicity**

Not classified based on available information.

**Skin corrosion/irritation**

Not classified based on available information.

**Components:**

**POLYVINYL CHLORIDE:**

Result: Not irritating to skin
Serious eye damage/eye irritation
Not classified based on available information.

Components:
POLYVINYL CHLORIDE:
Result: Not irritating to eyes

Respiratory or skin sensitisation
Skin sensitisation: Not classified based on available information.
Respiratory sensitisation: Not classified based on available information.

Germ cell mutagenicity
Not classified based on available information.

Carcinogenicity
Not classified based on available information.

Reproductive toxicity
Not classified based on available information.

STOT - single exposure
Not classified based on available information.

STOT - repeated exposure
Not classified based on available information.

Aspiration toxicity
Not classified based on available information.

Further information

Product:
Remarks: No data available

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Product:
Bioaccumulation : Remarks: The bioaccumulation potential cannot be determined.

12.4 Mobility in soil
No data available
12.5 Results of PBT and vPvB assessment
   Not relevant

12.6 Other adverse effects

   Product:
   Additional ecological information : No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
   Waste disposal method : Dispose of waste product in a sanitary landfill.
   As a disposal alternative, incinerate in an industrial or commercial facility in the presence of a combustible material.
   Combustion products will include HCl. Facility must be capable of handling halogenated materials.
   Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14: Transport information

14.1 UN number

   ADR: Not dangerous goods
   ADNR: Not dangerous goods
   RID: Not dangerous goods
   INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
   INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
   INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.2 UN proper shipping name

   ADR: Not dangerous goods
   ADNR: Not dangerous goods
   RID: Not dangerous goods
   INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
   INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
   INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.3 Transport hazard class(es)

   ADR: Not dangerous goods
   ADNR: Not dangerous goods
   RID: Not dangerous goods
   INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
   INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
   INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods
14.4 Packing group

ADR: Not dangerous goods
ADNR: Not dangerous goods
RID: Not dangerous goods
INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Ship Type: Not applicable
Hazard code(s): Not applicable
Pollutant Category: Not applicable

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 57): Not applicable

REACH - List of substances subject to authorisation (Annex XIV): Not applicable

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII): Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants: Not applicable


The components of this product are reported in the following inventories:

TSCA: On TSCA Inventory

DSL: All components of this product are on the Canadian DSL.

AUSTR: On the inventory, or in compliance with the inventory
ENCS On the inventory, or in compliance with the inventory
KECL On the inventory, or in compliance with the inventory
PHIL On the inventory, or in compliance with the inventory
IECSC On the inventory, or in compliance with the inventory

Inventories
AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

15.2 Chemical Safety Assessment
No data available

SECTION 16: Other information

Further information
Revision Date: 29.01.2016

Full text of H-Statements referred to under sections 2 and 3.

Further information
Other information: The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet:

ACGIH : American Conference of Industrial Hygienists
BEI : Biological Exposure Index
CAS : Chemical Abstracts Service (Division of the American Chemical Society).
CMR : Carcinogenic, Mutagenic or Toxic for Reproduction
FG : Food grade
GHS : Globally Harmonized System of Classification and Labeling of Chemicals.
H-statement : Hazard Statement
IATA : International Air Transport Association.
IATA-DGR : Dangerous Goods Regulation by the “International Air Transport Association” (IATA).
ICAO : International Civil Aviation Organization
ICAO-TI (ICAO) : Technical Instructions by the “International Civil Aviation Organization"
IMDG : International Maritime Code for Dangerous Goods
ISO : International Organization for Standardization
logPow : octanol-water partition coefficient
LCxx : Lethal Concentration, for xx percent of test population
LDxx : Lethal Dose, for xx percent of test population.
ICxx : Inhibitory Concentration for xx of a substance
Ecxx : Effective Concentration of xx
N.O.S.: Not Otherwise Specified
OECD : Organization for Economic Co-operation and Development
OEL : Occupational Exposure Limit
P-Statement : Precautionary Statement
PBT : Persistent, Bioaccumulative and Toxic
PPE : Personal Protective Equipment
STEL : Short-term exposure limit
STOT : Specific Target Organ Toxicity
TLV : Threshold Limit Value
TWA : Time-weighted average
vPvB : Very Persistent and Very Bioaccumulative
WEL : Workplace Exposure Level

ABM : Water Hazard Class for the Netherlands
ADR : Agreement concerning the International Carriage of Dangerous Goods by Road.
ADNR : Regulation for the Carriage of Dangerous Substances on the Rhine
CLP : Classification, Labelling and Packaging
CSA : Chemical Safety Assessment
CSR : Chemical Safety Report
DNEL : Derived No Effect Level.
EINECS : European Inventory of Existing Commercial Chemical Substances.
ELINCS : European List of Notified Chemical Substances
PEC : Predicted Effect Concentration
PEL : Permissible Exposure Limits
PNEC : Predicted No Effect Concentration
R-phrase : Risk phrase
REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals
RID : Regulation Concerning the International Transport of Dangerous Goods by Rail
S-phrase : Safety phrase
WGK : German Water Hazard Class
SAFETY DATA SHEET  
Revision Date 28/Dec/2017

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier  
Product Description:  
NORPOL® PF-3353

Other means of identification  
SAP ID(s): 195140 ; 195141; 195142  
Material Code: PF-3353  
Chemical Family Vinyl Ester Resin

Recommended use of the chemical and restrictions on use  
Recommended Use Bonding Paste  
Uses advised against No information available

Details of the supplier of the safety data sheet  
Manufacturer/Supplier:  
Polynt Composites USA, Inc.
99 East Cottage Avenue  
Carpentersville IL 60110

In Canada  
Polynt Composites Canada Inc
29 Regan Road  
Brampton, Ontario  
L7A 1B2

Emergency Telephone  
Chemtrec: 1-800-424-9300 (in U.S. & Canada)  
+1-703-741-5970 (international)

E-mail address  
MSDS@polynt.com

2. HAZARDS IDENTIFICATION

OSHA Regulatory Status  
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Inhalation (Vapors) Category 4  
Skin corrosion/irritation Category 2  
Serious eye damage/eye irritation Category 2A  
Skin sensitization Category 1  
Carcinogenicity Sub-category 1B  
Reproductive toxicity Category 2  
Specific target organ toxicity (single exposure) Category 3  
Specific target organ toxicity (repeated exposure) Category 1  
Aspiration toxicity Category 1  
Flammable solids Category 1

Label elements

Emergency Overview

Danger

Hazard statements  
Harmful if inhaled  
Causes skin irritation  
Causes serious eye irritation  
May cause an allergic skin reaction  
May cause cancer
**Precautionary Statements - Prevention**

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Use only outdoors or in a well-ventilated area
Wash face, hands and any exposed skin thoroughly after handling
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Do not breathe dust/fume/gas/mist/vapors/spray
Do not eat, drink or smoke when using this product
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Ground/bond container and receiving equipment
Use explosion-proof electrical/ ventilating / lighting / equipment

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention
Specific treatment (see .? on this label)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation or rash occurs: Get medical advice/attention
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting
In case of fire: Use CO2, dry chemical, or foam to extinguish

**Precautionary Statements - Storage**

Store locked up
Store in a well-ventilated place. Keep container tightly closed

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Not applicable

**Other Information**

May be harmful in contact with skin
Harmful to aquatic life with long lasting effects
Toxic to aquatic life

Unknown acute toxicity 48.48293283 % of the mixture consists of ingredient(s) of unknown toxicity
Unknown aquatic toxicity 66.22634 % of the mixture consists of components(s) of unknown hazards to the aquatic environment
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>31.9</td>
<td></td>
</tr>
<tr>
<td>Inert fillers</td>
<td>Proprietary</td>
<td>9 - 10</td>
<td></td>
</tr>
<tr>
<td>Di-Me, Siloxanes and silicones, reaction products with silica</td>
<td>67762-90-7</td>
<td>7 - 9</td>
<td></td>
</tr>
<tr>
<td>Alpha-Methyl Styrene</td>
<td>98-83-9</td>
<td>0.5 - 0.7</td>
<td></td>
</tr>
<tr>
<td>2,4,6-tris(Dimethylamino)methyl Phenol</td>
<td>90-72-2</td>
<td>0.1729</td>
<td></td>
</tr>
<tr>
<td>Cobalt compounds</td>
<td>Proprietary</td>
<td>&lt; 0.15</td>
<td>*</td>
</tr>
</tbody>
</table>

* The exact percentage (concentration) of composition has been withheld as a trade secret. If CAS number is "proprietary", the specific chemical identity has been withheld as a trade secret.

4. FIRST AID MEASURES

**First Aid Measures**

**Eye Contact**
Immediately flush eyes for at least 15 minutes. Get medical attention.

**Skin Contact**
Wash off with warm water and soap. Remove contaminated clothing and shoes. If skin irritation persists, call a physician. Wash contaminated clothing before reuse.

**Inhalation**
Remove person to fresh air. If signs/symptoms continue, get medical attention. Keep patient warm and at rest. If not breathing, give artificial respiration. If breathing is labored, administer oxygen. Get medical attention immediately.

**Ingestion**
Do NOT induce vomiting. Potential for aspiration if swallowed. This material may enter the lungs during vomiting. Immediately give the victim one or two glasses of water or milk to drink. Never give anything by mouth to an unconscious person. GET IMMEDIATE MEDICAL ATTENTION.

**Most important symptoms and effects, both acute and delayed**

**Most Important Symptoms and Effects**
Inhalation of high vapor concentrations can cause central nervous system depression and narcosis.

**Indication of any immediate medical attention and special treatment needed**
Treat symptomatically.

**Notes to Physician**
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**
Carbon dioxide (CO2), Foam, Dry chemical, Water spray

**Unsuitable Extinguishing Media**
Do not use a solid water stream as it may scatter and spread fire.

**Specific hazards arising from the chemical**

**Hazardous combustion products**
Combustion may produce carbon monoxide, carbon dioxide and irritating or toxic vapors and gases

**Combustion/explosion hazards**
Flammable. Vapors may form explosive mixtures with air. Flash back possible over considerable distance. This material may polymerize (react) when its container is exposed to heat (as during a fire). This polymerization increases pressure inside a closed container and may result in the violent rupture of the container. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be
completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed. Closed containers may rupture when exposed to extreme heat.

**Protective Equipment and Precautions for Firefighters**

Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all protective equipment after use. Evacuate all persons from the fire area to a safe location. Move non-burning material, as feasible, to a safe location as soon as possible. Fire fighters should be protected from potential explosion hazard while extinguishing the blaze. Use water spray to cool fire-exposed containers.

### 6. ACCIDENTAL RELEASE MEASURES

#### Personal precautions, protective equipment and emergency procedures

**Personal Precautions**

Remove all sources of ignition. Evacuate personnel to safe areas. Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Soak up with inert absorbent material and dispose of as hazardous waste. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

**Methods and material for containment and cleaning up**

**Methods for Containment**

Prevent spilled material from 1) contaminating soil, 2) entering sanitary sewers, storm sewers, and drainage systems, and 3) entering bodies of water or ditches that lead to waterways. Prevent spreading over a wide area (e.g. by containment or oil barriers).

**Methods for Clean-up**

Soak up with inert absorbent material. Remove from surface water (e.g. by skimming or siphoning). Dispose of contaminated material as waste according to item 13.

### 7. HANDLING AND STORAGE

#### Precautions for safe handling

**Handling**

Do not breathe vapor or mist. Avoid contact with skin, eyes or clothing. Wash hands before breaks and immediately after handling the product. Take off contaminated clothing and wash before reuse. Ensure adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion-proof equipment. Consult your supplier of promoters and catalysts for additional instructions on proper mixing and usage. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed.

**Conditions for safe storage, including any incompatibilities**

**Storage**

Keep away from heat and sources of ignition. No smoking. Protect from direct sunlight. Keep containers tightly closed in a cool, well-ventilated place. To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 77°F (25°C).

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Exposure limits

.
Styrene (CAS #: 100-42-5)

ACGIH TLV
20 ppm TWA
40 ppm STEL
A4 Not Classifiable as a Human Carcinogen

OSHA PEL
100 ppm TWA
200 ppm Ceiling

Industry PEL
While the federal workplace exposure limit for styrene is 100 ppm, OSHA accepted the styrene industry's proposal to voluntarily meet a PEL of 50 ppm on an 8 hour TWA and a Short Term Exposure Limit (STEL) of 100 ppm, 15 minute exposure.

Canada - Alberta OELs
40 ppm STEL
170 mg/m³ STEL
20 ppm TWA
85 mg/m³ TWA

Canada - Ontario OELs
35 ppm TWA
100 ppm STEL

Canada - British Columbia OELs
50 ppm TWA
75 ppm STEL

NIOSH IDLH
700 ppm

Mexico OEL
100 ppm STEL
425 mg/m³ STEL
50 ppm TWA
215 mg/m³ TWA

(skin)

Inert fillers (CAS #:)

ACGIH TLV
1 mg/m³ TWA

Canada - Ontario OELs
1 mg/m³ TWA

Canada - British Columbia OELs
1.0 mg/m³ TWA

Di-Me, Siloxanes and silicons, reaction products with silica (CAS #: 67762-90-7)

OSHA PEL
20 mppcf, 80mg/m³/%SiO₂ TWA

NIOSH IDLH
3000 mg/m³

Alpha-Methyl Styrene (CAS #: 98-83-9)

ACGIH TLV
10 ppm TWA
A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans

OSHA PEL
100 ppm Ceiling

Canada - Alberta OELs
100 ppm STEL
480 mg/m³ Ceiling

Canada - Ontario OELs
100 ppm STEL
483 mg/m³ STEL
50 ppm TWA
242 mg/m³ TWA

Canada - British Columbia OELs
50 ppm TWA
75 ppm STEL
100 ppm Ceiling

NIOSH IDLH
700 ppm

Mexico OEL
100 ppm STEL
485 mg/m³ STEL
50 ppm TWA
240 mg/m³ TWA

Legend
ACGIH (American Conference of Governmental Industrial Hygienists)
TLV® (Threshold Limit Value)
TWA (time-weighted average)
STEL - Short Term Exposure Limit
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
OEL - Occupational Exposure Limit
NIOSH - National Institute for Occupational Safety and Health
IDLH - Immediately Dangerous to Life or Health
SKIN: Skin Absorption
mppcf - millions of particles per cubic foot
Appropriate engineering controls

Engineering Controls Use general ventilation to maintain airborne concentrations to levels that are below regulatory and recommended occupational exposure limits. Local ventilation may be required during certain operations. Use explosion-proof electrical equipment.

Individual protection measures, such as personal protective equipment

Eye/face Protection Safety glasses with side-shields. If splashes are likely to occur:. Tight sealing safety goggles. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin Protection Wear protective nitrile rubber or Viton™ gloves. Gloves made of nitrile rubber or polyvinyl chloride (PVC) may be used for splash protection and brief or intermittent contact with styrenated polyester resin. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Impervious clothing. Rubber or plastic boots.

Respiratory Protection None required if hazards have been assessed and airborne concentrations are maintained below the exposure limits listed in Section 8. Wear an approved air-purifying respirator with organic vapor cartridges and particulate filters where airborne concentrations may exceed exposure limits in Section 8 and/or there is exposure to dust or mists due to sanding, grinding, cutting, or spraying. Use an approved positive-pressure air-supplied respirator with emergency escape provisions if there is any potential for an uncontrolled release, airborne concentrations are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Gray - Opaque</td>
</tr>
<tr>
<td>Odor</td>
<td>Pungent</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>0.2 ppm (Styrene)</td>
</tr>
<tr>
<td>Physical State</td>
<td>Paste</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>490°C / 914°F (Styrene)</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>146°C / 295°F (Styrene)</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td>Lower: 1.1% (Styrene)</td>
</tr>
<tr>
<td></td>
<td>Upper: 6.1% (Styrene)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.12 - 1.15 @ 25°C</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble (Water)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>0.49 (BuAc = 1) (Styrene)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>5 mmHg @ 20°C (Styrene)</td>
</tr>
<tr>
<td></td>
<td>6.7 hPa (Styrene)</td>
</tr>
<tr>
<td>Vapor density</td>
<td>3.6 (Air = 1) (Styrene)</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Percent Volatile</td>
<td>34.0 % by weight</td>
</tr>
<tr>
<td>VOC Content</td>
<td>409 g/l (calculated) product as supplied</td>
</tr>
<tr>
<td>Viscosity</td>
<td>800 - 950 mPa·s @ 23°C</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
No dangerous reaction known under conditions of normal use.

**Chemical Stability**
Stable under normal conditions. Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**
Polymerization can occur. Hazardous polymerization will occur if contaminated with peroxides, metal salts and polymerization catalysts. Product will undergo hazardous polymerization at temperatures above 150 F (65 C).

**Conditions to Avoid**
Heat, flames and sparks. Contamination by those materials referred to under Incompatible materials.

**Incompatible materials**

**Hazardous decomposition products**
Hydrocarbons. Carbon monoxide. Carbon dioxide (CO2). Thermal decomposition can lead to release of irritating and toxic gases and vapors.

### 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Primary Routes of Entry**
Eye contact, Ingestion, Inhalation, Skin Contact, Skin absorption

**Acute toxicity**

**Styrene**
- Oral LD50 = 5000 mg/kg (Rat)
- Dermal LD50 > 2000 mg/kg (Rat)
- Inhalation LC50 = 11.8 mg/l (4 H) (Rat)
- Inert fillers
  - Oral LD50 > 5000 mg/kg (Rat)

**Alpha-Methyl Styrene**
- Oral LD50 = 4900 mg/kg (Rat)

**2,4,6-tris(Dimethylamino)methyl Phenol**
- Oral LD50 = 2169 mg/kg (Rat)
- Dermal LD50 = 1280 mg/kg (Rat)

**Information on toxicological effects**

**Symptoms**
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Eyes**
Causes serious eye irritation.

**Skin**
May be harmful in contact with skin. Contact causes skin irritation. Prolonged skin contact may defat the skin and produce dermatitis.

**Inhalation**
Harmful by inhalation. May cause irritation of respiratory tract. Inhalation of high vapor concentrations can cause central nervous system depression and narcosis.

**Ingestion**
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion is not an anticipated route of exposure for this material in industrial use.

**Sensitization**
May cause sensitization of susceptible persons by skin contact.

**Repeated dose toxicity**
In humans, styrene may cause a transient decrease in color discrimination and effects on hearing. Repeated or prolonged exposure may cause skin irritation and dermatitis, due to defatting properties of the product. May cause damage to the kidneys, liver, eyes, brain,
respiratory system, central nervous system through prolonged or repeated exposure if inhaled.

**Mutagenic effects**
Styrene has given mixed positive and negative results in a number of mutagenicity tests. Styrene was not mutagenic without metabolic activation but gave negative and positive mutagenic results with metabolic activation.

**Carcinogenicity**
Styrene has caused lung tumors in the mouse but not in the rat. There is strong evidence that the mechanism of this tumor formation in mice is species- and organ-specific and is therefore not relevant to humans. Some, but not all, epidemiology studies have found small increases in cancers of the lymph and blood-forming systems associated with certain, but not all, styrene exposure metrics. However, when considered as a whole, there are no consistent increases in incidence of, or mortality from, any type of cancer among studies of individuals exposed to styrene.

**Styrene**

<table>
<thead>
<tr>
<th>Source</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>A4 - Not Classifiable as a Human Carcinogen</td>
</tr>
<tr>
<td>IARC</td>
<td>Group 2B - Possibly Carcinogenic to Humans</td>
</tr>
<tr>
<td>NTP</td>
<td>Reasonably anticipated to be human carcinogen</td>
</tr>
</tbody>
</table>

**Alpha-Methyl Styrene**

<table>
<thead>
<tr>
<th>Source</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC</td>
<td>Group 2B - Possibly Carcinogenic to Humans</td>
</tr>
</tbody>
</table>

**Cobalt compounds**

<table>
<thead>
<tr>
<th>Source</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC</td>
<td>Group 2B - Possibly Carcinogenic to Humans</td>
</tr>
</tbody>
</table>

**Legend**
- IARC - International Agency for Research on Cancer
- NTP - National Toxicology Program
- ACGIH (American Conference of Governmental Industrial Hygienists)

**Reproductive Toxicity**
No information available.

**Neurological effects**
No information available.

**STOT - single exposure**
No information available.

**STOT - repeated exposure**
No information available.

**Target organ effects**
Liver, Kidney, Central nervous system (CNS), Respiratory system.

**Aspiration hazard**
No information available.

**Unknown acute toxicity**
48.48293283 % of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on chapter 3.1 of the GHS document.

- **ATEmix (oral)**: 5275 mg/kg
- **ATEmix (dermal)**: 2095 mg/kg
- **ATEmix (inhalation-vapor)**: 19.1 mg/L

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Styrene**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partition coefficient</td>
<td>2.95</td>
</tr>
<tr>
<td>Bioconcentration factor</td>
<td>74</td>
</tr>
<tr>
<td>Algae</td>
<td></td>
</tr>
<tr>
<td>EC50</td>
<td>1.4 mg/L (Pseudokirchneriella subcapitata) (72h)</td>
</tr>
<tr>
<td>EC50</td>
<td>4.3 mg/L (Pseudokirchneriella subcapitata) (72h)</td>
</tr>
<tr>
<td>Fish</td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>3.24 - 4.99 mg/L (Pimephales promelas) (96 h) flow-through</td>
</tr>
<tr>
<td>LC50</td>
<td>19.03 - 33.53 mg/L (Lepomis macrochirus) (96 h) static</td>
</tr>
<tr>
<td>LC50</td>
<td>14.5 mg/L (Pimephales promelas) (96 h) static</td>
</tr>
<tr>
<td>Crustacea</td>
<td></td>
</tr>
<tr>
<td>EC50</td>
<td>3.3 - 7.4 mg/L 48 h</td>
</tr>
</tbody>
</table>

**Alpha-Methyl Styrene**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partition coefficient</td>
<td>3.265</td>
</tr>
<tr>
<td>Algae</td>
<td></td>
</tr>
<tr>
<td>EC50</td>
<td>52.6 mg/L (Pseudokirchneriella subcapitata) (72h)</td>
</tr>
</tbody>
</table>
Fish LC50 15 mg/l (Oryzias latipes) (96 h)
Cobalt compounds EC50 = 0.639 mg/L

Unknown aquatic toxicity
66.22634 % of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Persistence/Degradability
No information available.

Bioaccumulation
No information available.

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal Considerations Hazardous waste. Can be incinerated, when in compliance with local regulations.
Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.
US EPA Waste Number D001 (IGNITABLE): When discarded in its purchased form, this material would be regulated under 40 CFR 261.21 as EPA Hazardous Waste Number D001 based on the characteristic of ignitability.

14. TRANSPORT INFORMATION

DOT
UN/ID no. UN3175
Proper shipping name SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.
Technical Name: STYRENE
Hazard Class 4.1
Packing Group II
NAERG: 133

TDG
UN/ID no. UN3175
Proper shipping name SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.
Technical Name: STYRENE
Hazard Class CLASS 4.1
Packing Group PG II
NAERG: 133

MEX
UN/ID no. UN3175
Proper shipping name SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.
Technical Name: STYRENE
Hazard Class CLASS 4.1
Packing Group PG II
NAERG: 133

IATA
UN/ID no. UN3175
Proper shipping name SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.
Technical Name: STYRENE
Hazard Class: 4.1  
Packing Group: II  
Packing Instructions: 415; 417  
NAERG: 133  
Comments: The maximum net quantity per package permitted by passenger or cargo aircraft is 15 kg. The maximum net quantity per package permitted by cargo aircraft only is 50 kg.

IMDG/IMO  
UN/ID no. UN3175  
Proper shipping name: SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.  
Technical Name: STYRENE  
Hazard Class: CLASS 4.1  
Packing Group: PG II  
EmS-No: F-A, S-I  
NAERG: 133  

15. REGULATORY INFORMATION

International Inventories

TSCA Inventory Status: All components of this material are listed on the US Toxic Substances Control Act (TSCA) inventory.

Canadian Inventory Status: All components of this material are listed on the Canadian Domestic Substances List (DSL).

Australian Inventory Status: This product contains one or more chemicals currently not on the Australian Inventory of Chemical Substances.

Korean Inventory Status: This product contains one or more chemicals currently not on the Korean Chemical Substances List.

Philippine Inventory: This product contains one or more chemicals currently not on the Philippine Inventory of Chemicals and Chemical Substances.

Japan ENCS: This product contains one or more chemicals currently not on the Japanese Inventory of Existing and New Chemical Substances.

Chinese IECS: This product contains only chemicals that are currently listed on the Chinese Inventory of Existing Chemical Substances.

US Federal Regulations

TSCA 12(b) - Export Notification: This material does not contain any components that are subject to the US Toxic Substances Control Act (TSCA) Section 12(b) Export Notification requirements.

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and and Title 40 of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>SARA 313 Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>31.9</td>
<td>Listed</td>
</tr>
<tr>
<td>Cobalt compounds</td>
<td></td>
<td>&lt; 0.15</td>
<td>Listed</td>
</tr>
</tbody>
</table>

EPCRA: Emergency Planning and Community Right-to-Know Act
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)
This product contains the following listed substances:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene 100-42-5</td>
<td>1000 lb</td>
<td></td>
<td></td>
<td>Listed</td>
</tr>
</tbody>
</table>
Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product contains the following HAPs:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>HAPS data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>31.9</td>
<td></td>
</tr>
<tr>
<td>Cobalt compounds</td>
<td>&lt; 0.15</td>
<td></td>
<td>Listed</td>
</tr>
</tbody>
</table>

CERCLA
This product contains the following reportable quantities:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>40 CFR 302.4 RQ</th>
<th>40 CFR 355 EHS TPQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>1000 lb</td>
<td>454 kg</td>
</tr>
</tbody>
</table>

Chemical Weapons Convention (CWC)
This product does not contain any listed substances.

State Regulations

California Proposition 65
WARNING: This material contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. The California Safe Drinking Water and Toxic Enforcement Act of 1986 requires that clear and reasonable warning be given prior to exposing any person to this chemical.

Canada
This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA Rating</th>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Prepared By    Polynt Regulatory Department
Revision Date  28/Dec/2017
Revision Note  None
Former date    New

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End of Safety Data Sheet
Section 1. Identification

Product identifier : GC 0209 KH V02 Ral 7035 Grey
Other means of identification : Not available.
Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Gelcoat

Supplier : Scott Bader S.A.
Montieres Activites 65 Rue Sully
B.P. 51601
80016 Amiens Cedex 01
France
Tel. + 33 (0) 3 22 66 27 66
Fax + 33 (0) 3 22 66 27 80
e.mail: info@scottbader.fr
Société anonyme au capital de 500000 €
RC Amiens B631 720 497 - APE 2016Z

e-mail address of person responsible for this SDS : SDS@scottbader.com

Emergency telephone number (with hours of operation) : + 47 22 59 13 00

Section 2. Hazard identification

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
ACUTE TOXICITY (inhalation) - Category 4
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 1

GHS label elements

Hazard pictograms : 

Signal word : Danger
Hazard statements : Flammable liquid and vapour.
Harmful if inhaled.
Causes serious eye irritation.
Causes skin irritation.
Suspected of damaging the unborn child.
Suspected of causing cancer.
Causes damage to organs through prolonged or repeated exposure. (hearing organs)

Precautionary statements : 

Date of issue/Date of revision : 4/8/2016
Date of previous issue : 3/3/2016
Version : 1.23
Section 2. Hazard identification

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Do not breathe vapour. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response: Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage: Store locked up.

Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture

Other means of identification: Not available.

CAS number/other identifiers:
- CAS number: Not applicable.
- Product code: G2017300

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>% (w/w)</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>29.604</td>
<td>100-42-5</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>≥9.3683</td>
<td>13463-67-7</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Section 4. First-aid measures

**Ingestion**: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Most important symptoms/effects, acute and delayed**

**Potential acute health effects**

- **Eye contact**: Causes serious eye irritation.
- **Inhalation**: Harmful if inhaled.
- **Skin contact**: Causes skin irritation.
- **Ingestion**: No known significant effects or critical hazards.

**Over-exposure signs/symptoms**

- **Eye contact**: Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness
- **Inhalation**: Adverse symptoms may include the following:
  - reduced foetal weight
  - increase in foetal deaths
  - skeletal malformations
- **Skin contact**: Adverse symptoms may include the following:
  - irritation
  - redness
  - reduced foetal weight
  - increase in foetal deaths
  - skeletal malformations
- **Ingestion**: Adverse symptoms may include the following:
  - reduced foetal weight
  - increase in foetal deaths
  - skeletal malformations

**Indication of immediate medical attention and special treatment needed, if necessary**

- **Notes to physician**: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- **Specific treatments**: No specific treatment.
- **Protection of first-aiders**: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Firefighting measures

**Extinguishing media**

- **Suitable extinguishing media**: Use dry chemical, CO₂, water spray (fog) or foam.
- **Unsuitable extinguishing media**: Do not use water jet.
Section 5. Firefighting measures

Specific hazards arising from the chemical: Flammable liquid and vapour. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products: Decomposition products may include the following materials:
- carbon dioxide
- carbon monoxide
- metal oxide/oxides

Special protective actions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from...
Section 7. Handling and storage

Advice on general occupational hygiene:

- Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities:

- Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>styrene</strong></td>
<td>CA Alberta Provincial (Canada, 4/2009).</td>
</tr>
<tr>
<td></td>
<td>15 min OEL: 40 ppm 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>15 min OEL: 170 mg/m³ 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>8 hrs OEL: 85 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>8 hrs OEL: 20 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>CA British Columbia Provincial (Canada, 5/2015).</td>
</tr>
<tr>
<td></td>
<td>TWA: 50 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>STEL: 75 ppm 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>CA Ontario Provincial (Canada, 7/2015).</td>
</tr>
<tr>
<td></td>
<td>TWA: 35 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>STEL: 100 ppm 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>CA Quebec Provincial (Canada, 1/2014).</td>
</tr>
<tr>
<td></td>
<td>Absorbed through skin.</td>
</tr>
<tr>
<td></td>
<td>TWAEV: 50 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>TWAEV: 213 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>STEV: 100 ppm 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>STEV: 426 mg/m³ 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>CA Saskatchewan Provincial (Canada).</td>
</tr>
<tr>
<td></td>
<td>STEL: 40 ppm 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>TWA: 20 ppm 8 hours.</td>
</tr>
<tr>
<td><strong>titanium dioxide</strong></td>
<td>CA British Columbia Provincial (Canada, 5/2015).</td>
</tr>
<tr>
<td></td>
<td>TWA: 3 mg/m³ 8 hours. Form: Respirable dust.</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 mg/m³ 8 hours. Form: Total dust.</td>
</tr>
<tr>
<td></td>
<td>CA Quebec Provincial (Canada, 1/2014).</td>
</tr>
<tr>
<td></td>
<td>TWAEV: 10 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>CA Alberta Provincial (Canada, 4/2009).</td>
</tr>
<tr>
<td></td>
<td>8 hrs OEL: 10 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>CA Ontario Provincial (Canada, 7/2015).</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>CA Saskatchewan Provincial (Canada).</td>
</tr>
<tr>
<td></td>
<td>STEL: 20 mg/m³ 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 mg/m³ 8 hours.</td>
</tr>
</tbody>
</table>
Section 8. Exposure controls/personal protection

**Appropriate engineering controls**: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Environmental exposure controls**: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**Individual protection measures**

**Eye/face protection**

- Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

**Skin protection**

**Hand protection**

- Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

**Body protection**

- Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

**Other skin protection**

- Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection**

- Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

**Physical state**: Liquid.

**Colour**: Not available.

**Odour**: Solvent

**Odour threshold**: Not available.

**pH**: Not available.

**Melting point**: Not available.

**Boiling point**: Not available.

**Flash point**: Closed cup: 32°C (89.6°F)

**Evaporation rate**: Not available.

**Flammability (solid, gas)**: Not available.
Section 9. Physical and chemical properties

- Lower and upper explosive (flammable) limits: Not available.
- Vapour pressure: Not available.
- Vapour density: Not available.
- Relative density: 1.2 to 1.4
- Solubility: Not available.
- Partition coefficient: n-octanol/water: Not available.
- Auto-ignition temperature: Not available.
- Decomposition temperature: Not available.
- Viscosity: Kinematic (40°C (104°F)): >0.4 cm²/s (>40 cSt)

Section 10. Stability and reactivity

- Reactivity: No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability: The product is stable.
- Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid: Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- Incompatible materials: Reactive or incompatible with the following materials: oxidizing materials
- Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>2770 ppm</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Vapour</td>
<td>Rat</td>
<td>11800 mg/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>&gt;2000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2650 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>LC50 Inhalation Dusts and mists</td>
<td>Rat</td>
<td>&gt;6.8 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eyes - Mild irritant</td>
<td>Human</td>
<td>-</td>
<td>50 parts per million</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 Percent</td>
<td>-</td>
</tr>
</tbody>
</table>

Sensitisation

Not available.

Date of issue/Date of revision: 4/8/2016
Date of previous issue: 3/3/2016
Version: 1.23
Section 11. Toxicological information

**Mutagenicity**
Not available.

**Carcinogenicity**
Not available.

**Reproductive toxicity**
Not available.

**Teratogenicity**
Not available.

**Specific target organ toxicity (single exposure)**
Not available.

**Specific target organ toxicity (repeated exposure)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>Category 1</td>
<td>Not determined</td>
<td>hearing organs</td>
</tr>
</tbody>
</table>

**Aspiration hazard**
Not available.

Information on likely routes of exposure
Not available.

**Potential acute health effects**

*Eye contact* : Causes serious eye irritation.

*Inhalation* : Harmful if inhaled.

*Skin contact* : Causes skin irritation.

*Ingestion* : No known significant effects or critical hazards.

**Symptoms related to the physical, chemical and toxicological characteristics**

*Eye contact* : Adverse symptoms may include the following:
- pain or irritation
- watering
- redness

*Inhalation* : Adverse symptoms may include the following:
- reduced foetal weight
- increase in foetal deaths
- skeletal malformations

*Skin contact* : Adverse symptoms may include the following:
- irritation
- redness
- reduced foetal weight
- increase in foetal deaths
- skeletal malformations

*Ingestion* : Adverse symptoms may include the following:
- reduced foetal weight
- increase in foetal deaths
- skeletal malformations

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Short term exposure**

*Potential immediate effects* : Not available.

*Potential delayed effects* : Not available.
Section 11. Toxicological information

Long term exposure
Potential immediate effects : Not available.
Potential delayed effects : Not available.
Potential chronic health effects

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>Chronic NOAEL Dermal</td>
<td>Rat</td>
<td>615 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Chronic NOAEL Inhalation Gas.</td>
<td>Rat</td>
<td>20 ppm</td>
<td>8 hours</td>
</tr>
</tbody>
</table>

General : Causes damage to organs through prolonged or repeated exposure.
Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : Suspected of damaging the unborn child.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity
Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>8951.6 mg/kg</td>
</tr>
<tr>
<td>Inhalation (gases)</td>
<td>9357 ppm</td>
</tr>
<tr>
<td>Inhalation (vapours)</td>
<td>39.86 mg/l</td>
</tr>
</tbody>
</table>

Section 12. Ecological information

Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>Acute EC50 1400 μg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 33 mg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 4700 μg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 52000 μg/l Marine water</td>
<td>Crustaceans - Artemia salina - Nauplii</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 4020 μg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 1.01 mg/l</td>
<td>Daphnia</td>
<td>21 days</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>Acute EC50 27.8 mg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 15.9 mg/l Fresh water</td>
<td>Crustaceans - Ceriodaphnia dubia - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 &gt;1000 mg/l</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>

Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP ow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>0.35</td>
<td>13.49</td>
<td>low</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>-</td>
<td>352</td>
<td>low</td>
</tr>
</tbody>
</table>
Section 12. Ecological information

Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

<table>
<thead>
<tr>
<th></th>
<th>TDG Classification</th>
<th>DOT Classification</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN1866</td>
<td>UN1866</td>
<td>UN1866</td>
<td>UN1866</td>
<td>UN1866</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>RESIN SOLUTION</td>
<td>Resin solution</td>
<td>RESIN SOLUTION</td>
<td>RESIN SOLUTION</td>
<td>Resin solution</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Additional information</td>
<td>Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2. 18-2.19 (Class 3). Explosive Limit and Limited Quantity Index 5. Passenger Carrying Road or Rail Index. Reportable quantity 3378 lbs / 1533.6 kg [311.64 gal / 1179.7 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements. Hazard identification number 30 Limited quantity 5 L Special provisions 640E Tunnel code (D/E)</td>
<td></td>
<td></td>
<td></td>
<td>Emergency schedules (EmS) F-E, <em>S-E</em> Special provisions 223, 955</td>
</tr>
</tbody>
</table>
Section 14. Transport information

<table>
<thead>
<tr>
<th>Limited quantity</th>
<th>Special provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes.</td>
<td>A3</td>
</tr>
<tr>
<td><strong>Packaging</strong></td>
<td></td>
</tr>
<tr>
<td>instruction</td>
<td></td>
</tr>
<tr>
<td><strong>Passenger</strong></td>
<td></td>
</tr>
<tr>
<td><strong>aircraft</strong></td>
<td></td>
</tr>
<tr>
<td>Quantity limitation:</td>
<td></td>
</tr>
<tr>
<td>60 L</td>
<td></td>
</tr>
<tr>
<td><strong>Cargo</strong></td>
<td></td>
</tr>
<tr>
<td><strong>aircraft</strong></td>
<td></td>
</tr>
<tr>
<td>Quantity limitation:</td>
<td></td>
</tr>
<tr>
<td>220 L</td>
<td></td>
</tr>
<tr>
<td><strong>Special</strong></td>
<td></td>
</tr>
<tr>
<td><strong>provisions</strong></td>
<td></td>
</tr>
<tr>
<td>B1, B52, IB3, T2,</td>
<td></td>
</tr>
<tr>
<td>TP1</td>
<td></td>
</tr>
</tbody>
</table>

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of Marpol and the IBC Code: Not available.

Section 15. Regulatory information

Canadian lists
- **Canadian NPRI**: The following components are listed: Styrene
- **CEPA Toxic substances**: None of the components are listed.
- **Canada inventory**: Not determined.

International regulations
- **Chemical Weapon Convention List Schedules I, II & III Chemicals**: Not listed.
- **Stockholm Convention on Persistent Organic Pollutants**: Not listed.
- **UNECE Aarhus Protocol on POPs and Heavy Metals**: Not listed.

Inventory list
- **Australia**: Not determined.
- **China**: Not determined.
- **Europe**: Not determined.
- **Malaysia**: Not determined.
- **New Zealand**: Not determined.

Date of issue/Date of revision: 4/8/2016
Date of previous issue: 3/3/2016
Version: 1.23
Section 15. Regulatory information

<table>
<thead>
<tr>
<th>Country</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philippines</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Turkey</td>
<td>Not determined.</td>
</tr>
<tr>
<td>United States</td>
<td>All components are listed or exempted.</td>
</tr>
</tbody>
</table>

Section 16. Other information

History

| Date of printing | 4/8/2016                |
| Date of issue/Date of revision | 4/8/2016            |
| Date of previous issue | 3/3/2016             |
| Version           | 1.23                   |

Key to abbreviations

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- UN = United Nations
- HPR = Hazardous Products Regulations

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAMMABLE LIQUIDS - Category 3</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>ACUTE TOXICITY (inhalation) - Category 4</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SKIN IRRITATION - Category 2</td>
<td>Calculation method</td>
</tr>
<tr>
<td>EYE IRRITATION - Category 2A</td>
<td>Calculation method</td>
</tr>
<tr>
<td>CARCINOGENICITY - Category 2</td>
<td>Calculation method</td>
</tr>
<tr>
<td>TOXIC TO REPRODUCTION (Unborn child) - Category 2</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 1</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

References

Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.
1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier
Product Description: POLYLITE® 413-M912 (US)

Other means of identification
SAP ID(s): 189013 ; 189014
Material Code: 413-M912US
Chemical Family Polyester Resin

Recommended use of the chemical and restrictions on use
Recommended Use Laminating Resin
Uses advised against No information available

Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Polynt Composites USA, Inc.
99 East Cottage Avenue
Carpentersville IL 60110

In Canada
Polynt Composites Canada Inc
29 Regan Road
Brampton, Ontario
L7A 1B2

Emergency Telephone
Chemtrec: 1-800-424-9300 (in U.S. & Canada)
+1-703-741-5970 (international)

E-mail address
MSDS@polynt.com

2. HAZARDS IDENTIFICATION

Classification
OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazard statements
Causes skin irritation
Causes serious eye irritation
Suspected of causing cancer
Suspected of damaging fertility or the unborn child
May cause respiratory irritation
Causes damage to organs through prolonged or repeated exposure
May be fatal if swallowed and enters airways

Emergency Overview
Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Wash face, hands and any exposed skin thoroughly after handling
Do not breathe dust/fume/gas/mist/vapors/spray
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ ventilating/ lighting/ equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
Specific treatment (see .? on this label)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
Wash contaminated clothing before reuse
IF INHALED: Remove person to fresh air and keep comfortable for breathing
IF SWALLOWED: Immediately call a POISON CENTER or doctor
Do NOT induce vomiting
In case of fire: Use CO2, dry chemical, or foam to extinguish
Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Not applicable
Other Information
May be harmful in contact with skin
Harmful to aquatic life with long lasting effects
Toxic to aquatic life
Unknown aquatic toxicity
57.02213 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

3. COMPOSITION/INFORMATION ON INGREDIENTS
Chemical Name | CAS No. | Weight-% | Trade Secret
--- | --- | --- | ---
Styrene | 100-42-5 | 41.8 | 
Alpha-Methyl Styrene | 98-83-9 | 0.8 - 1.0 | 

If CAS number is "proprietary", the specific chemical identity has been withheld as a trade secret.

### 4. FIRST AID MEASURES

**First Aid Measures**

**Eye Contact**
Immediately flush eyes for at least 15 minutes. Get medical attention.

**Skin Contact**
Wash off with warm water and soap. Remove contaminated clothing and shoes. If skin irritation persists, call a physician. Wash contaminated clothing before reuse.

**Inhalation**
Remove person to fresh air. If signs/symptoms continue, get medical attention. Keep patient warm and at rest. If not breathing, give artificial respiration. If breathing is labored, administer oxygen. Get medical attention immediately.

**Ingestion**
Do NOT induce vomiting. Potential for aspiration if swallowed. This material may enter the lungs during vomiting. Never give anything by mouth to an unconscious person. GET IMMEDIATE MEDICAL ATTENTION.

**Most important symptoms and effects, both acute and delayed**

**Most Important Symptoms and Effects**
Inhalation of high vapor concentrations can cause central nervous system depression and narcosis. Irritating to eyes, respiratory system and skin. Repeated exposure to styrene may cause hearing effects.

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician**
Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

#### Suitable Extinguishing Media
Carbon dioxide (CO2), Foam, Dry chemical, Water spray

#### Unsuitable Extinguishing Media
Do not use a solid water stream as it may scatter and spread fire.

**Specific hazards arising from the chemical**

**Hazardous combustion products**
Combustion may produce carbon monoxide, carbon dioxide and irritating or toxic vapors and gases

**Combustion/explosion hazards**
Flammable. Vapors may form explosive mixtures with air. Flash back possible over considerable distance. This material may polymerize (react) when its container is exposed to heat (as during a fire). This polymerization increases pressure inside a closed container and may result in the violent rupture of the container. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed. Closed containers may rupture when exposed to extreme heat.

**Protective Equipment and Precautions for Firefighters**
Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all protective equipment after use. Evacuate all persons from the fire area to a safe location. Move non-burning material, as feasible, to a safe location as soon as possible. Fire fighters should be protected from potential explosion hazard while extinguishing the blaze. DO
NOT extinguish a fire resulting from the flow of this flammable liquid until the flow of liquid is effectively shut off. This precaution will help prevent the accumulation of an explosive vapor-air mixture after the initial fire is extinguished. Use water spray to cool fire-exposed containers.

### 6. ACCIDENTAL RELEASE MEASURES

#### Personal precautions, protective equipment and emergency procedures

**Personal Precautions**

Remove all sources of ignition. Evacuate personnel to safe areas. Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Avoid contact with skin and eyes.

**Other Information**

All equipment used when handling the product must be grounded.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Soak up with inert absorbent material and dispose of as hazardous waste. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

**Methods and material for containment and cleaning up**

**Methods for Containment**

Prevent spilled material from 1) contaminating soil, 2) entering sanitary sewers, storm sewers, and drainage systems, and 3) entering bodies of water or ditches that lead to waterways. Prevent spreading over a wide area (e.g. by containment or oil barriers).

**Methods for Clean-up**

Soak up with inert absorbent material. Remove from surface water (e.g. by skimming or siphoning). Dispose of contaminated material as waste according to item 13.

### 7. HANDLING AND STORAGE

#### Precautions for safe handling

**Handling**

Do not breathe vapor or mist. Avoid contact with skin, eyes or clothing. Wash hands before breaks and immediately after handling the product. Take off contaminated clothing and wash before reuse. Ensure adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion-proof equipment. Consult your supplier of promoters and catalysts for additional instructions on proper mixing and usage. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed. Do not use compressed air for filling, discharging or handling.

**Conditions for safe storage, including any incompatibilities**

**Storage**

Keep away from heat and sources of ignition. No smoking. Protect from direct sunlight. Keep containers tightly closed in a cool, well-ventilated place. To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 77°F (25°C).

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure limits**

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV (ppm TWA)</th>
<th>ACGIH TLV (ppm STEL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene (CAS #: 100-42-5)</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

Page 4 / 11
OSHA PEL

A4 Not Classifiable as a Human Carcinogen
100 ppm TWA
200 ppm Ceiling

Industry PEL

While the federal workplace exposure limit for styrene is 100 ppm, OSHA accepted the styrene industry's proposal to voluntarily meet a PEL of 50 ppm on an 8 hour TWA and a Short Term Exposure Limit (STEL) of 100 ppm, 15 minute exposure.

Canada - Alberta OELs
40 ppm STEL
170 mg/m³ STEL
20 ppm TWA
85 mg/m³ TWA

Canada - Ontario OELs
35 ppm TWA
100 ppm STEL

Canada - British Columbia OELs
50 ppm TWA
75 ppm STEL

NIOSH IDLH
700 ppm

Mexico OEL
100 ppm STEL
425 mg/m³ STEL
50 ppm TWA
215 mg/m³ TWA

(No STEL)

Alpha-Methyl Styrene (CAS #: 98-83-9)

ACGIH TLV

A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans
10 ppm TWA

OSHA PEL

100 ppm Ceiling
480 mg/m³ Ceiling

Canada - Alberta OELs
100 ppm STEL
483 mg/m³ STEL
50 ppm TWA
242 mg/m³ TWA

Canada - Ontario OELs
50 ppm TWA
100 ppm STEL

Canada - British Columbia OELs
50 ppm TWA
75 ppm STEL
100 ppm Ceiling

NIOSH IDLH
700 ppm

Mexico OEL
100 ppm STEL
485 mg/m³ STEL
50 ppm TWA
240 mg/m³ TWA

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)
TLV® (Threshold Limit Value)
TWA (time-weighted average)
STEL - Short Term Exposure Limit
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
OEL - Occupational Exposure Limit
NIOSH - National Institute for Occupational Safety and Health
IDLH - Immediately Dangerous to Life or Health
SKIN: Skin Absorption

Appropriate engineering controls

Engineering Controls

Use general ventilation to maintain airborne concentrations to levels that are below regulatory and recommended occupational exposure limits. Local ventilation may be required during certain operations. Use explosion-proof electrical equipment.

Individual protection measures, such as personal protective equipment

Eye/face Protection

Safety glasses with side-shields. If splashes are likely to occur. Tight sealing safety goggles. Ensure that eyewash stations and safety showers are close to the workstation.
Skin Protection
Wear protective nitrile rubber or Viton™ gloves. Gloves made of nitrile rubber or polyvinyl chloride (PVC) may be used for splash protection and brief or intermittent contact with styrenated polyester resin. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Impervious clothing. Rubber or plastic boots.

Respiratory Protection
None required if hazards have been assessed and airborne concentrations are maintained below the exposure limits listed in Section 8. Wear an approved air-purifying respirator with organic vapor cartridges and particulate filters where airborne concentrations may exceed exposure limits in Section 8 and/or there is exposure to dust or mists due to sanding, grinding, cutting, or spraying. Use an approved positive-pressure air-supplied respirator with emergency escape provisions if there is any potential for an uncontrolled release, airborne concentrations are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

General Hygiene Considerations
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Hazy Blue</td>
</tr>
<tr>
<td>Odor</td>
<td>Pungent</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>0.2 ppm (Styrene)</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>32 °C / 89 °F</td>
</tr>
<tr>
<td>Flash Point Method:</td>
<td>Seta closed cup</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>490°C / 914°F (Styrene)</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>146°C / 295°F (Styrene)</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>1.1% (Styrene)</td>
</tr>
<tr>
<td>Upper</td>
<td>6.1% (Styrene)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.00 - 1.12 @ 25°C</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in water</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>0.49 (BuAc = 1) (Styrene)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>5 mmHg @ 20°C (Styrene)</td>
</tr>
<tr>
<td>Vapor density</td>
<td>6.7 hPa (Styrene)</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Percent Volatile</td>
<td>42 - 46 % by weight</td>
</tr>
<tr>
<td>VOC Content</td>
<td>455 g/l (calculated) product as supplied</td>
</tr>
<tr>
<td>Viscosity</td>
<td>1100 - 2000 cps @ 23°C</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
Unstable upon depletion of inhibitor.

Chemical Stability
Stable under normal conditions. Stable under recommended storage conditions.

Possibility of Hazardous Reactions

Hazardous polymerization
Polymerization can occur. Hazardous polymerization will occur if contaminated with peroxides, metal salts and polymerization catalysts. Product will undergo hazardous
polymerization at temperatures above 150 F (65 C). Hazardous polymerization may occur upon depletion of inhibitor - may cause heat and pressure build-up in closed containers.

**Conditions to Avoid**

**Incompatible materials**

**Hazardous decomposition products**
Hydrocarbons. Carbon monoxide. Carbon dioxide (CO2). Thermal decomposition can lead to release of irritating and toxic gases and vapors.

### 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Primary Routes of Entry**
Eye contact, Ingestion, Inhalation, Skin Contact, Skin absorption

**Acute toxicity**

<table>
<thead>
<tr>
<th>Compound</th>
<th>Oral LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>= 1000 mg/kg (Rat)</td>
<td>= 11.8 mg/l (4 H) (Rat)</td>
</tr>
<tr>
<td>Alpha-Methyl Styrene</td>
<td>= 4900 mg/kg (Rat)</td>
<td></td>
</tr>
</tbody>
</table>

**Information on toxicological effects**

**Symptoms**
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Eyes**
Causes serious eye irritation.

**Skin**
Contact causes skin irritation. Prolonged skin contact may defat the skin and produce dermatitis.

**Inhalation**
Harmful by inhalation. May cause irritation of respiratory tract. Inhalation of high vapor concentrations can cause central nervous system depression and narcosis.

**Ingestion**
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion is not an anticipated route of exposure for this material in industrial use.

**Irritation**
Irritating to eyes and skin.

**Corrosivity**
Not corrosive.

**Sensitization**
Not sensitizing.

**Repeated dose toxicity**
In humans, styrene may cause a transient decrease in color discrimination and effects on hearing. Repeated or prolonged exposure may cause skin irritation and dermatitis, due to defatting properties of the product. May cause damage to the kidneys, liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled. May cause damage to the liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled.

**Mutagenic effects**
Styrene has given mixed positive and negative results in a number of mutagenicity tests. Styrene was not mutagenic without metabolic activation but gave negative and positive mutagenic results with metabolic activation.

**Carcinogenicity**
Styrene has caused lung tumors in the mouse but not in the rat. There is strong evidence that the mechanism of this tumor formation in mice is species- and organ-specific and is
therefore not relevant to humans. Some, but not all, epidemiology studies have found small increases in cancers of the lymph and blood-forming systems associated with certain, but not all, styrene exposure metrics. However, when considered as a whole, there are no consistent increases in incidence of, or mortality from, any type of cancer among studies of individuals exposed to styrene.

**Styrene**

<table>
<thead>
<tr>
<th>ACGIH</th>
<th>A4 - Not Classifiable as a Human Carcinogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC</td>
<td>Group 2A - Probably Carcinogenic to Humans</td>
</tr>
<tr>
<td>NTP</td>
<td>Reasonably anticipated to be human carcinogen</td>
</tr>
<tr>
<td>Alpha-Methyl Styrene</td>
<td>Group 2B - Possibly Carcinogenic to Humans</td>
</tr>
<tr>
<td>IARC</td>
<td>IARC - International Agency for Research on Cancer</td>
</tr>
</tbody>
</table>

**Legend**

- ACGIH (American Conference of Governmental Industrial Hygienists)
- IARC - International Agency for Research on Cancer
- NTP - National Toxicology Program

**Reproductive Toxicity**

No information available.

**Neurological effects**

No information available.

**STOT - single exposure**

No information available.

**STOT - repeated exposure**

No information available.

**Target organ effects**

Liver, Kidney, Central nervous system (CNS), Respiratory system, Eyes, Skin.

**Aspiration hazard**

No information available.

The following values are calculated based on chapter 3.1 of the GHS document.

<table>
<thead>
<tr>
<th>ATEmix (oral)</th>
<th>11961 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEmix (dermal)</td>
<td>4787 mg/kg</td>
</tr>
<tr>
<td>ATEmix (inhalation-vapor)</td>
<td>28.2 mg/L</td>
</tr>
</tbody>
</table>

### 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Styrene**

<table>
<thead>
<tr>
<th>Partition coefficient</th>
<th>2.95</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioconcentration factor (BCF)</td>
<td>13.5 fish</td>
</tr>
<tr>
<td>Algae</td>
<td>EC50 = 1.4 mg/L (Pseudokirchneriella subcapitata) (72h) EC50 0.46 - 4.3 mg/L (Pseudokirchneriella subcapitata) (72h)</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50 3.24 - 4.99 mg/L (Pimephales promelas) (96 h) flow-through LC50 19.03 - 33.53 mg/L (Lepomis macrochirus) (96 h) static LC50 6.75 - 14.5 mg/L (Pimephales promelas) (96 h) static LC50 58.75 - 95.32 mg/L (Poecilia reticulata) (96 h) static</td>
</tr>
<tr>
<td>Crustacea</td>
<td>3.3 - 7.4: 48 h Daphnia magna mg/L EC50</td>
</tr>
</tbody>
</table>

**Alpha-Methyl Styrene**

<table>
<thead>
<tr>
<th>Partition coefficient</th>
<th>3.265</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algae</td>
<td>EC50 52.6 mg/l (Pseudokirchneriella subcapitata) (72 h)</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50 15 mg/l (Oryzias latipes) (96 h)</td>
</tr>
</tbody>
</table>

**Unknown aquatic toxicity**

57.02213 % of the mixture consists of components(s) of unknown hazards to the aquatic environment.

**Persistence/Degradability**

No information available.

**Bioaccumulation**

No information available.

**Other adverse effects**
13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Disposal Considerations
Hazardous waste. Can be incinerated, when in compliance with local regulations.
Contaminated packaging
Empty containers should be taken for local recycling, recovery or waste disposal.
US EPA Waste Number
D001 (IGNITABLE): When discarded in its purchased form, this material would be regulated under 40 CFR 261.21 as EPA Hazardous Waste Number D001 based on the characteristic of ignitability.

14. TRANSPORT INFORMATION

DOT
UN/ID no. UN1866
Proper shipping name RESIN SOLUTION
Hazard Class 3
Packing Group III
NAERG: 127

TDG
UN/ID no. UN1866
Proper shipping name RESIN SOLUTION
Hazard Class CLASS 3
Packing Group PG III
NAERG: 127

MEX
UN/ID no. 1886
Proper shipping name RESIN SOLUTION
Hazard Class CLASS 3
Packing Group PG III
NAERG: 127

IATA
UN/ID no. UN1866
Proper shipping name RESIN SOLUTION
Hazard Class 3
Packing Group III
Packing Instructions 355; 366
NAERG: 127

IMDG/IMO
UN/ID no. UN1866
Proper shipping name RESIN SOLUTION
Hazard Class CLASS 3
Packing Group PG III
EmS-No F-E, S-E
NAERG: 127

15. REGULATORY INFORMATION

International Inventories
TSCA Inventory Status: All components of this material are listed on the US Toxic Substances Control Act (TSCA) inventory.
Canadian Inventory Status: All components of this material are listed on the Canadian Domestic Substances List (DSL)
Australian Inventory Status: This product contains only chemicals which are currently listed on the Australian Inventory of Chemical Substances

Korean Inventory Status: This product contains only chemicals which are currently listed on the Korean Chemical Substances List

Philippine Inventory: This product contains one or more chemicals currently not on the Philippine Inventory of Chemicals and Chemical Substances

Japan ENCS: This product contains one or more chemicals currently not on the Japanese Inventory of Existing and New Chemical Substances

Chinese IECS: This product contains only chemicals that are currently listed on the Chinese Inventory of Existing Chemical Substances

New Zealand Inventory: This product contains one or more chemicals currently not on the New Zealand Inventory of Chemicals

Taiwan Existing Chemical Substances Inventory: This product contains only chemicals which are currently listed on the Taiwan Existing Chemical Substances Inventory

US Federal Regulations

TSCA 12(b) - Export Notification:
This material does not contain any components that are subject to the US Toxic Substances Control Act (TSCA) Section 12(b) Export Notification requirements.

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and and Title 40 of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>SARA 313 Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>41.8</td>
<td>Listed</td>
</tr>
</tbody>
</table>

EPCRA: Emergency Planning and Community Right-to-Know Act
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)
This product contains the following listed substances:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>1000 lb</td>
<td></td>
<td></td>
<td>Listed</td>
</tr>
</tbody>
</table>

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product contains the following HAPs:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>HAPS data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>41.8</td>
<td></td>
</tr>
</tbody>
</table>

CERCLA
This product contains the following reportable quantities:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>40 CFR 302.4 RQ</th>
<th>40 CFR 355 EHS TPQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>1000 lb</td>
<td>454 kg</td>
</tr>
</tbody>
</table>

Chemical Weapons Convention (CWC)
This product does not contain any listed substances.

California Proposition 65
WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

Canada
This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA Rating</th>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Prepared By: Polynt Regulatory Department
Revision Date: 04/Sep/2018
Revision Note: None
This data sheet contains changes from the previous version in section(s): 15, 16
Former date: 28 December 2017

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End of Safety Data Sheet
SAFETY DATA SHEET
Revision Date 09/Nov/2018

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier
Product Description: HYDREX® 100 33350-60
SAP ID(s): 197087 ; 197088; 197089; 197090; 205393
Chemical Family Vinyl Ester Resin
Pure substance/mixture Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against
Recommended Use General-purpose polyester resin
Sector of Uses [SU] SU3 - Industrial uses
SU12 - Manufacture of plastics products, including compounding and conversion
SU22 - Professional uses

Product categories [PC] PC32 - Polymer preparations and compounds
Process categories [PROC] PROC1 - Use in closed process, no likelihood of exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles
(multi-stage and/or significant contact)
PROC7 - Industrial spraying
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10 - Roller application or brushing
PROC11 - Non industrial spraying
PROC13 - Treatment of articles by dipping and pouring
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
PROC15 - Use as laboratory reagent

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet
Supplier Polynt Composites UK Ltd.
Laporte Road
Stallingborough - Near Grimsby
North East Lincolnshire, England DN41 8DR
Tel: +39 035 652111
E-mail address msds@polynt.com : +39 035 652111

1.4. Emergency telephone number (CareChem24) +44(0)1235 239670
(CareChem24) +44(0)1235 239670

2. HAZARDS IDENTIFICATION

2.1. - Classification of the substance or mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity - Inhalation (Vapours) Category 4
Acute toxicity - Inhalation (Dusts/Mists) Category 4
Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 2
Skin Sensitisation Category 1A
Reproductive Toxicity Category 2
Specific target organ toxicity — single exposure Category 3
Specific target organ toxicity — repeated exposure Category 1
Chronic aquatic toxicity Category 3
Flammable liquid Category 3

2.2. Label Elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Signal word

Contains Styrene, Alpha-Methyl Styrene, Cobalt bis(2-ethylhexanoate)

Hazard statements
H332 - Harmful if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H317 - May cause an allergic skin reaction
H361d - Suspected of damaging the unborn child
H335 - May cause respiratory irritation
H372 - Causes damage to hearing through prolonged or repeated exposure if inhaled
H412 - Harmful to aquatic life with long lasting effects

H226 - Flammable liquid and vapour

53.1 % of the mixture consists of ingredient(s) of unknown toxicity
56.9 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

Precautionary Statements - EU (§28, 1272/2008)
P202 - Do not handle until all safety precautions have been read and understood
P314 - Get medical advice/attention if you feel unwell
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking
P280 - Wear protective gloves and eye/face protection
P260 - Do not breathe mist/vapours/spray

2.3. Other hazards
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>EC No</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>EU - GHS Substance Classification</th>
<th>REACH Reg. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>202-851-5</td>
<td>100-42-5</td>
<td>39 - 43</td>
<td>STOT SE 3 (H335)</td>
<td>01-2119457861-32</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

4.1. Description of first aid measures
Eye Contact
Immediately flush eyes for at least 15 minutes. Get medical attention.

Skin Contact
Wash off with warm water and soap. Remove contaminated clothing and shoes. If skin irritation persists, call a doctor. Wash contaminated clothing before reuse.

Ingestion
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

Inhalation
Remove to fresh air. Keep patient warm and at rest. If breathing is laboured, administer oxygen. If not breathing, give artificial respiration. Get medical attention immediately.

4.2. Most important symptoms and effects, both acute and delayed
Irritating to eyes, respiratory system and skin. Harmful by inhalation, in contact with skin and if swallowed. May cause allergic skin reaction. Inhalation of high vapor concentrations can cause central nervous system depression and narcosis.

4.3. Indication of any immediate medical attention and special treatment needed
Notes to Physician
Treat symptomatically.

5. FIREFIGHTING MEASURES

5.1. Extinguishing media
Suitable Extinguishing Media
Carbon dioxide (CO2), Foam, Dry chemical, Water spray

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture
Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases
Flammable. Vapours may form explosive mixtures with air. Vapours may travel to areas away from work site before igniting/flashign back to vapour source. Combustion may produce carbon monoxide, carbon dioxide, irritating or toxic vapors and
gases. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

5.3. Advice for firefighters
Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear. Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Remove all sources of ignition. Evacuate personnel to safe areas. Avoid contact with skin and eyes. Use personal protective equipment as required. Refer to Section 8. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. A vapour suppressing foam may be used to reduce vapours. All equipment used when handling the product must be grounded.

6.2. Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Soak up with inert absorbent material and dispose of as hazardous waste. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.3. Methods and material for containment and cleaning up
A vapour suppressing foam may be used to reduce vapours. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Use clean non-sparking tools to collect absorbed material.

6.4. Reference to other sections
See Section 12 for more information

7. HANDLING AND STORAGE

7.1. Precautions for safe handling
Handling
Wear personal protective equipment. Refer to Section 8. Do not breathe vapour or mist. Avoid contact with skin, eyes or clothing. Take off contaminated clothing and wash it before reuse. Ensure adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion-proof equipment. Consult your supplier of promoters and catalysts for additional instructions on proper mixing and usage. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed. Do not use compressed air for filling, discharging or handling. Wash hands before breaks and immediately after handling the product.

General Hygiene Considerations
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Keep away from heat and sources of ignition. No smoking. Protect from direct sunlight. Store away from incompatible materials. Keep containers tightly closed in a cool, well-ventilated place. To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 25°C.

7.3. Specific end use(s)
Other Guidelines
No information available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters
Exposure Limits
Components with workplace control parameters.
<table>
<thead>
<tr>
<th>Country</th>
<th>STEL Limit</th>
<th>TWA Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>80 ppm</td>
<td>340 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>85 mg/m³</td>
</tr>
<tr>
<td>Belgium</td>
<td>25 ppm</td>
<td>108 mg/m³</td>
</tr>
<tr>
<td></td>
<td>(skin)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80 ppm</td>
<td>346 mg/m³</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>85.0 mg/m³</td>
<td>215.0 mg/m³</td>
</tr>
<tr>
<td>Croatia</td>
<td>250 ppm</td>
<td>1080 mg/m³</td>
</tr>
<tr>
<td></td>
<td>STEL KGVI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 ppm</td>
<td>430 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA GVI</td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>400 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ceiling</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>25 ppm</td>
<td>105 mg/m³</td>
</tr>
<tr>
<td></td>
<td>(skin)</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>20 ppm</td>
<td>90 mg/m³</td>
</tr>
<tr>
<td></td>
<td>50 ppm</td>
<td>200 mg/m³</td>
</tr>
<tr>
<td></td>
<td>STEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(skin)</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>20 ppm</td>
<td>86 mg/m³</td>
</tr>
<tr>
<td></td>
<td>100 ppm</td>
<td>430 mg/m³</td>
</tr>
<tr>
<td>France</td>
<td>23.3 ppm</td>
<td>100 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA 1000 mg/m³ TWA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46.6 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 ppm</td>
<td>1500 mg/m³</td>
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<tr>
<td>Germany</td>
<td>20 ppm</td>
<td>86 mg/m³</td>
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<tr>
<td>Greece</td>
<td>100 ppm</td>
<td>425 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>250 ppm</td>
<td>1050 mg/m³</td>
</tr>
<tr>
<td></td>
<td>STEL</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>50 mg/m³</td>
<td>50 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA AK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEL CK</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>20 ppm</td>
<td>85 mg/m³</td>
</tr>
<tr>
<td></td>
<td>40 ppm</td>
<td>170 mg/m³</td>
</tr>
<tr>
<td>Italy</td>
<td>20 ppm</td>
<td>85 mg/m³</td>
</tr>
<tr>
<td></td>
<td>40 ppm</td>
<td>170 mg/m³</td>
</tr>
<tr>
<td>Latvia</td>
<td>10 mg/m³</td>
<td>30 mg/m³</td>
</tr>
<tr>
<td>Lithuania</td>
<td>20 ppm</td>
<td>90 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA (IPRD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 ppm</td>
<td>50 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA (IPRD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEL (TPRD)</td>
<td>(skin)</td>
</tr>
<tr>
<td>Norway</td>
<td>25 ppm</td>
<td>105 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td></td>
</tr>
</tbody>
</table>
Poland
37.5 ppm STEL
131.25 mg/m³ STEL
100 mg/m³ STEL
50 mg/m³ TWA

Portugal OELs Data
20 ppm
40 ppm STEL

Romania
12 ppm TWA
50 mg/m³ TWA
35 ppm STEL
150 mg/m³ STEL

Russia
10 mg/m³ TWA
30 mg/m³ STEL (2320)

Slovakia
20 ppm TWA
86 mg/m³ TWA
200 mg/m³ Ceiling

Slovenia
20 ppm TWA
86 mg/m³ TWA
80 ppm STEL
344 mg/m³ STEL

Spain
20 ppm TWA
86 mg/m³ TWA
40 ppm STEL
172 mg/m³ STEL

Sweden
10 ppm TLV
43 mg/m³ TLV
20 ppm Indicative STEL
86 mg/m³ Indicative STEL (skin)

Switzerland
40 ppm STEL
170 mg/m³ STEL
20 ppm TWA
85 mg/m³ TWA

United Kingdom
100 ppm TWA
430 mg/m³ TWA
250 ppm STEL
1080 mg/m³ STEL

ACGIH - TLV
20 ppm TWA
40 ppm STEL

Alpha-Methyl Styrene
European Union
100 ppm Indicative
492 mg/m³ Indicative
50 ppm Indicative
246 mg/m³ Indicative

Austria
100 ppm STEL
492 mg/m³ STEL
50 ppm TWA
246 mg/m³ TWA

Belgium
50 ppm TWA
246 mg/m³ TWA
100 ppm STEL
492 mg/m³ STEL

Bulgaria
240 mg/m³ TWA
485 mg/m³ STEL

Croatia
100 ppm STEL KGVI
492 mg/m³ STEL KGVI
50 ppm TWA GVI
246 mg/m³ TWA GVI

Cyprus
100 ppm STEL
492 mg/m³ STEL
50 ppm TWA
246 mg/m³ TWA
<table>
<thead>
<tr>
<th>Country</th>
<th>Concentration Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>500 mg/m³ Ceiling 250 mg/m³ TWA</td>
</tr>
<tr>
<td>Denmark</td>
<td>50 ppm 246 mg/m³ TWA 100 ppm STEL 492 mg/m³ STEL</td>
</tr>
<tr>
<td>Estonia</td>
<td>50 ppm TWA 246 mg/m³ TWA 100 ppm STEL 492 mg/m³ STEL</td>
</tr>
<tr>
<td>Finland</td>
<td>50 ppm TWA 250 mg/m³ TWA 100 ppm STEL 490 mg/m³ STEL</td>
</tr>
<tr>
<td>France</td>
<td>25 ppm TWA 123 mg/m³ TWA 100 ppm 492 mg/m³</td>
</tr>
<tr>
<td>Germany</td>
<td>50 ppm TWA 250 mg/m³ TWA 100 ppm STEL 492 mg/m³ STEL</td>
</tr>
<tr>
<td>Greece</td>
<td>100 ppm TWA 480 mg/m³ TWA 150 ppm STEL 720 mg/m³ STEL</td>
</tr>
<tr>
<td>Hungary</td>
<td>246 mg/m³ TWA AK 492 mg/m³ STEL CK</td>
</tr>
<tr>
<td>Ireland</td>
<td>50 ppm TWA 246 mg/m³ TWA 100 ppm STEL 492 mg/m³ STEL</td>
</tr>
<tr>
<td>Italy</td>
<td>50 ppm TWA 246 mg/m³ TWA 100 ppm STEL 492 mg/m³ STEL</td>
</tr>
<tr>
<td>Latvia</td>
<td>5 mg/m³ TWA 50 ppm TWA 246 mg/m³ TWA 100 ppm STEL 492 mg/m³ STEL</td>
</tr>
<tr>
<td>Lithuania</td>
<td>50 ppm TWA (IPRD) 246 mg/m³ TWA (IPRD) 100 ppm STEL (TPRD) 492 mg/m³ STEL (TPRD)</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>50 ppm TWA 246 mg/m³ TWA 100 ppm STEL 492 mg/m³ STEL</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>20 mg/m³ TWA 50 ppm TWA 240 mg/m³ TWA 50 ppm STEL 240 mg/m³ STEL</td>
</tr>
<tr>
<td>Norway</td>
<td>480 mg/m³ STEL 240 mg/m³ TWA</td>
</tr>
<tr>
<td>Portugal OELs Data</td>
<td>50 ppm 246 mg/m³ 100 ppm STEL 492 mg/m³ STEL</td>
</tr>
<tr>
<td>Poland</td>
<td>480 mg/m³ STEL 240 mg/m³ TWA</td>
</tr>
<tr>
<td>Portugal OELs Data</td>
<td>50 ppm 246 mg/m³ TWA 51 ppm TWA 250 mg/m³ TWA 100 ppm STEL 492 mg/m³ STEL</td>
</tr>
<tr>
<td>Romania</td>
<td>50 ppm TWA 246 mg/m³ TWA 51 ppm TWA 250 mg/m³ TWA 100 ppm STEL 492 mg/m³ STEL</td>
</tr>
<tr>
<td>Russia</td>
<td>5 mg/m³ MAC (vapor)</td>
</tr>
<tr>
<td>Slovakia</td>
<td>50 ppm TWA</td>
</tr>
<tr>
<td>Country</td>
<td>Limit</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Slovenia</td>
<td>50 ppm TWA</td>
</tr>
<tr>
<td></td>
<td>246 mg/m³ TWA</td>
</tr>
<tr>
<td></td>
<td>100 ppm STEL</td>
</tr>
<tr>
<td>Spain</td>
<td>50 ppm TWA</td>
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<tr>
<td></td>
<td>246 mg/m³ TWA</td>
</tr>
<tr>
<td></td>
<td>100 ppm STEL</td>
</tr>
<tr>
<td>Sweden</td>
<td>20 ppm LLV</td>
</tr>
<tr>
<td></td>
<td>98 mg/m³ LLV</td>
</tr>
<tr>
<td></td>
<td>50 ppm STV</td>
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<tr>
<td>Switzerland</td>
<td>100 ppm STEL</td>
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<tr>
<td></td>
<td>500 mg/m³ STEL</td>
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<tr>
<td></td>
<td>50 ppm TWA</td>
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<tr>
<td></td>
<td>250 mg/m³ TWA</td>
</tr>
<tr>
<td>Turkey</td>
<td>50 ppm TWA</td>
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<tr>
<td></td>
<td>246 mg/m³ TWA</td>
</tr>
<tr>
<td></td>
<td>100 ppm STEL</td>
</tr>
<tr>
<td></td>
<td>492 mg/m³ STEL</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>50 ppm TWA</td>
</tr>
<tr>
<td></td>
<td>246 mg/m³ TWA</td>
</tr>
<tr>
<td></td>
<td>100 ppm STEL</td>
</tr>
<tr>
<td></td>
<td>492 mg/m³ STEL</td>
</tr>
<tr>
<td>ACGIH - TLV</td>
<td>10 ppm TWA</td>
</tr>
<tr>
<td>Cobalt bis(2-ethylhexanoate)</td>
<td></td>
</tr>
<tr>
<td>Austrian Republic</td>
<td>0.1 mg/m³ Ceiling</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>0.05 mg/m³ TWA</td>
</tr>
<tr>
<td>Greece</td>
<td>0.1 mg/m³ TWA</td>
</tr>
<tr>
<td>Ireland</td>
<td>0.1 mg/m³ TWA</td>
</tr>
<tr>
<td>Norway</td>
<td>0.02 mg/m³ TWA</td>
</tr>
<tr>
<td>Switzerland</td>
<td>(skin)</td>
</tr>
<tr>
<td></td>
<td>0.05 mg/m³ TWA</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.1 mg/m³ TWA</td>
</tr>
</tbody>
</table>

**Legend**

ACGIH (American Conference of Governmental Industrial Hygienists)

TLV® (Threshold Limit Value)

tWA (time-weighted average)

STEL (Short Term Exposure Limit)

MAK - Maximum Occupational Exposure Limits

SKIN: Skin Absorption

**Biological occupational exposure limits**

**Chemical Name**

**Styrene**

**Bulgaria**

BEI: 600 mg/g Creatinine, DETERMINANT: Mandelic acid and Phenylglyoxylic acid - total in urine, SAMPLING TIME: at the end of exposure or end of shift, in remote exposure - after several shifts

**Finland**

BEI: 1.2 mmol/L, DETERMINANT: MAPGA in urine, SAMPLING TIME: in the morning after a working day, NOTE: MAPGA equals sum of urinary Mandelic and Phenylglyoxylic acids

**France**

BEI: 0.02 mg/L, DETERMINANT: Styrene in venous blood, SAMPLING TIME: Before the beginning of the next shift, NOTE: Semi-quantitative (ambiguous interpretation)

BEI: 300 mg/g creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: Before the beginning of the next shift, NOTE: Non-specific (observed after the exposure to other substances)
BEI: 0.55 mg/L, DETERMINANT: Styrene in venous blood, SAMPLING TIME: end of shift, NOTE: Semi-quantitative (ambiguous interpretation)
BEI: 800 mg/g creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: end of shift, NOTE: Non-specific (observed after the exposure to other substances)
BEI: 240 mg/g creatinine, DETERMINANT: Phenylglyoxylic acid in urine, SAMPLING TIME: end of shift, NOTE: Non-specific (observed after the exposure to other substances)
BEI: 100 mg/g creatinine, DETERMINANT: Phenylglyoxylic acid in urine, SAMPLING TIME: prior to shift, NOTE: Germany
BEI: 600 mg/g, DETERMINANT: Mandelic acid plus Phenylglyoxylic acid in urine, SAMPLING TIME: end of shift, NOTE: measured as mg/g Creatinine
BEI: 600 mg/g, DETERMINANT: Mandelic acid plus Phenylglyoxylic acid in urine, SAMPLING TIME: end of several shifts, NOTE: measured as mg/g Creatinine;for long-term exposures

Latvia
BEI: 0.8 g/g Creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: end of shift
BEI: 0.55 mg/L, DETERMINANT: Styrene in blood, SAMPLING TIME: end of shift

Romania
BEI: 800 mg/g Creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: end of shift
BEI: 300 mg/g Creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: beginning of next shift
BEI: 100 mg/g Creatinine, DETERMINANT: Phenylglyoxylic acid in urine, SAMPLING TIME: end of shift
BEI: 100 mg/g Creatinine, DETERMINANT: Phenylglyoxylic acid in urine, SAMPLING TIME: beginning of next shift
BEI: 0.55 mg/L, DETERMINANT: Styrene in blood, SAMPLING TIME: end of shift
BEI: 0.02 mg/L, DETERMINANT: Styrene in blood, SAMPLING TIME: beginning of next shift

Slovakia
BEI: 600 mg/g creatinine, DETERMINANT: Mandelic acid and Phenylglycolic acid in urine, SAMPLING TIME: after all work shifts, NOTE: for long-term exposure
BEI: 600 mg/g creatinine, DETERMINANT: Mandelic acid and Phenylglycolic acid in urine, SAMPLING TIME: end of exposure or work shift, NOTE:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Derived No Effect Level (DNEL)</th>
<th>Predicted No Effect Concentration (PNEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Styrene</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End Use: Workers</td>
<td>Exposure Route: Inhalation</td>
<td>Fresh water</td>
</tr>
<tr>
<td>Exposure Type: Acute, systemic effects</td>
<td>Value: 289 mg/m³ (68 ppm)</td>
<td>Value: 0.028 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assessment factor: 10</td>
</tr>
<tr>
<td>End Use: Workers</td>
<td>Exposure Route: Inhalation</td>
<td>Sea water</td>
</tr>
<tr>
<td>Exposure Type: Acute, local effects</td>
<td>Value: 306 mg/m³ (72 ppm)</td>
<td>Value: 0.0028 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assessment factor: 100</td>
</tr>
<tr>
<td>End Use: Workers</td>
<td>Exposure Route: Inhalation</td>
<td>Water</td>
</tr>
<tr>
<td>Exposure Type: Long term, systemic effects</td>
<td>Value: 85 mg/m³ (20 ppm)</td>
<td>Value: 0.04 mg/l Intermittent Releases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assessment factor: 100</td>
</tr>
<tr>
<td>End Use: Workers</td>
<td>Exposure Route: Dermal</td>
<td>Fresh water sediment</td>
</tr>
<tr>
<td>Exposure Type: Long term, systemic effects</td>
<td>Value: 406 mg/kg bw/day</td>
<td>Value: 0.614 mg/kg dw</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sea sediment</td>
</tr>
<tr>
<td>End Use: General Population</td>
<td>Exposure Route: Inhalation</td>
<td>Value: 0.0614 mg/kg dw</td>
</tr>
<tr>
<td>Exposure Type: Acute, systemic effects</td>
<td>Value: 174.25 mg/m³ (41 ppm)</td>
<td>Sewage Treatment Plant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assessment factor: 100</td>
</tr>
<tr>
<td>End Use: General Population</td>
<td>Exposure Route: Inhalation</td>
<td>Soil</td>
</tr>
<tr>
<td>Exposure Type: Acute, local effects</td>
<td>Value: 182.75 mg/m³ (43 ppm)</td>
<td>Value: 0.2 mg/kg dw</td>
</tr>
<tr>
<td>Cobalt bis(2-ethylhexanoate)</td>
<td>End Use: General Population</td>
<td>End Use: Workers</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Exposure Route: Inhalation</td>
<td>Exposure Route: Inhalation</td>
<td>Fresh water</td>
</tr>
<tr>
<td>Exposure Type: Long term, systemic effects</td>
<td>Exposure Type: Long term, local effects</td>
<td>Marine water</td>
</tr>
<tr>
<td>Value: 10.2 mg/m³ (2.4 ppm)</td>
<td>Value: 235 ug/m³</td>
<td>Sediment</td>
</tr>
<tr>
<td>End Use: General Population</td>
<td>Exposure Route: Oral</td>
<td>Value: 9.5 mg Co/kg sed. dw</td>
</tr>
<tr>
<td>Exposure Type: Long term, systemic effects</td>
<td>Value: 55.8 ug/kg bw/day</td>
<td>Soil</td>
</tr>
<tr>
<td>Value: 343 mg/kg bw/day</td>
<td>Value: 37 ug/m³</td>
<td>Value: 7.9 mg Co/kg Soil dw</td>
</tr>
<tr>
<td>End Use: General Population</td>
<td>Exposure Route: Inhalation</td>
<td>Sewage Treatment Plant</td>
</tr>
<tr>
<td>Exposure Type: Long term, local effects</td>
<td>Value: 37 ug/m³</td>
<td>Value: 0.37 mg Co/l</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Engineering Controls
Use general ventilation to maintain airborne concentrations to levels that are below regulatory and recommended occupational exposure limits. Local ventilation may be required during certain operations. Use explosion-proof electrical equipment.

Personal protective equipment

Eye Protection
Safety glasses with side-shields conforming to EN166. If splashes are likely to occur: use tightly fitting safety goggles (EN166). Ensure that eyewash stations and safety showers are close to the workstation location.

Skin Protection
Impervious clothing.

Hand Protection
Protective gloves complying with EN 374. Wear protective nitrile rubber or Viton™ gloves. Gloves made of nitrile rubber or polyvinyl chloride (PVC) may be used for splash protection and brief or intermittent contact with styrenated polyester resin. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Respiratory Protection
None required if hazards have been assessed and airborne concentrations are maintained below the exposure limits listed in Section 8. Wear an approved air-purifying respirator with organic vapor cartridges and particulate filters where airborne concentrations may exceed exposure limits in Section 8 and/or there is exposure to dust or mists due to sanding, grinding, cutting, or spraying. Use an approved positive-pressure air-supplied respirator with emergency escape provisions if there is any potential for an uncontrolled release, airborne concentrations are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

Recommended Filter Type
Type A (EN141) and Type P2 (EN143)

Environmental exposure controls
Local authorities should be advised if significant spillages cannot be contained.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties
HYDREX® 100 33350-60

Appearance
Amber
Physical State
Liquid
Odour
Pungent
Odour threshold
0.2 ppm (Styrene)
0.05 ppm - 13 ppm (alpha-Methyl Styrene)

Explosive properties
No information available

Oxidising Properties
No information available

9.2.  Other information
No information available

10. STABILITY AND REACTIVITY

10.1.  Reactivity
Unstable upon depletion of inhibitor.

10.2.  Chemical Stability
Stable under normal conditions. Stable under recommended storage conditions.

10.3.  Possibility of Hazardous Reactions
Polymerisation can occur. Hazardous polymerization will occur if contaminated with peroxides, metal salts and polymerization catalysts. Hazardous polymerization may occur upon depletion of inhibitor - may cause heat and pressure build-up in closed containers. Product will undergo hazardous polymerization at temperatures above 150 F (65 C).

10.4.  Conditions to Avoid

10.5.  Incompatible materials

10.6.  Hazardous decomposition products
Hydrocarbons. Carbon monoxide. Carbon dioxide (CO2). Thermal decomposition can lead to release of irritating and toxic gases and vapours.

11. TOXICOLOGICAL INFORMATION

11.1.  Information on toxicological effects
Acute toxicity
Styrene
**Oral LD50**
= 1000 mg/kg (Rat)

**Inhalation LC50**
= 11.8 mg/l (4 H) (Rat)

**Alpha-Methyl Styrene**

**Oral LD50**
= 4900 mg/kg (Rat)

**Inhalation**
Harmful by inhalation. May cause irritation of respiratory tract. Inhalation of high vapor concentrations can cause central nervous system depression and narcosis.

**Ingestion**
May be harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May be harmful if swallowed and enters airways.

**Skin Contact**
Causes skin irritation. Prolonged skin contact may defat the skin and produce dermatitis. May cause sensitisation by skin contact.

**Eye Contact**
Causes serious eye irritation.

**Irritation**
Irritating to eyes and skin.

**Corrosivity**
Not corrosive.

**Sensitisation**
May cause an allergic skin reaction. May cause sensitisation of susceptible persons by skin contact.

**Carcinogenic Effects**
There is no convincing evidence that styrene possesses significant carcinogenic potential in humans.

**Repeated dose toxicity**
In humans, styrene may cause a transient decrease in color discrimination and effects on hearing. Repeated or prolonged exposure may cause skin irritation and dermatitis, due to defatting properties of the product. May cause damage to the liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled. May cause damage to the kidneys, liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled.

**Mutagenic effects**
Styrene has given mixed positive and negative results in a number of mutagenicity tests. Styrene was not mutagenic without metabolic activation but gave negative and positive mutagenic results with metabolic activation.

**Reproductive Toxicity**
May damage fertility or the unborn child.

**Teratogenicity**
Styrene did not cause birth defects in orally-dosed rats, mice, rabbits and hamsters exposed by inhalation. Styrene given by inhalation for six hours a day during organ development has been shown to be toxic to fetal mice at 250 ppm and to fetal hamsters at 1000 ppm. Information from human experience and the results of animal studies suggest no significant risk of birth defects or reproductive toxicity of styrene to humans.

**Target organ effects**
Liver, Central nervous system (CNS), Respiratory system, Kidney, Skin.

**Numerical measures of toxicity - Product Information**

**Unknown acute toxicity**
53.1 % of the mixture consists of ingredient(s) of unknown toxicity

**The following values are calculated based on chapter 3.1 of the GHS document**

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEmix (oral)</td>
<td>7967 mg/kg</td>
</tr>
<tr>
<td>ATEmix (dermal)</td>
<td>2086 mg/kg</td>
</tr>
<tr>
<td>ATEmix (inhalation-dust/mist)</td>
<td>1.7 mg/l</td>
</tr>
<tr>
<td>ATEmix (inhalation-vapour)</td>
<td>13.2 mg/l</td>
</tr>
</tbody>
</table>
Ecotoxicity effects: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Styrene

Algae
EC50 = 1.4 mg/L (Pseudokirchneriella subcapitata) (72h) EC50 0.46 - 4.3 mg/L (Pseudokirchneriella subcapitata) (72h)

Fish
LC50 3.24 - 4.99 mg/L (Pimephales promelas) (96 h) flow-through
LC50 19.03 - 33.53 mg/L (Lepomis macrochirus) (96 h) static
LC50 6.75 - 14.5 mg/L (Pimephales promelas) (96 h) static
LC50 58.75 - 95.32 mg/L (Poecilia reticulata) (96 h) static

Aquatic Invertebrates
EC50 3.3 - 7.4 mg/L (Daphnia magna) (48h)

Alpha-Methyl Styrene

Algae
EC50 52.6 mg/l (Pseudokirchneriella subcapitata) (72 h)

Fish
LC50 15 mg/l (Oryzias latipes) (96 h)

Aquatic Invertebrates
EC50 54 mg/l (Daphnia magna) (48 h)

Cobalt bis(2-ethylhexanoate)

Algae
EC50 = 0.639 mg/L

12.2. Persistence and degradability
No information available.

12.3. Bioaccumulative potential
Not likely to bioaccumulate.

Styrene
Partition coefficient 2.95
Bioconcentration factor (BCF) 13.5 fish

Alpha-Methyl Styrene
Partition coefficient 3.265

12.4. Mobility in soil
No information available.

12.5. Results of PBT and vPvB assessment
This preparation contains no substance considered to be persistent, bio-accumulating nor toxic (PBT) This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB)

12.6. Other adverse effects
No information available

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Waste from residues/unused products
This material and its container must be disposed of as hazardous waste. Dispose of contents/containers in accordance with local regulations. Can be incinerated, when in compliance with local regulations.

Contaminated packaging
Empty containers should be taken for local recycling, recovery or waste disposal.

EWC Waste Disposal No
07 00 00 WASTES FROM ORGANIC CHEMICAL PROCESSES
07 02 00 Wastes from MFSU of plastics, synthetic rubber and man-made fibres
07 02 99 Wastes not otherwise specified

14. TRANSPORT INFORMATION

ADR/RID

UN/ID no UN1866
Proper shipping name RESIN SOLUTION
Hazard Class 3
Packing Group III
Environmental hazard None
Classification Code: F1  
Hazard identification number: 30  
(Keimer No.)  
Tunnel restriction code: D/E  
ADR Exception: This material meets the viscosity criteria specified in ADR 2.2.3.1.5 and may be classed as "not dangerous" when packaged in containers of less than 450 liters.

IMDG/IMO  
UN/ID no: UN1866  
Proper shipping name: RESIN SOLUTION  
Hazard Class: CLASS 3  
Packing Group: PG III  
Environmental hazard: None  
EmS-No: F-E, S-E  
IMDG Exception: This material meets the viscosity criteria specified in IMDG Code 2.3.2.5 and may be exempt from the marking, labelling and package testing requirements if transported in containers of 30 liters or less.

Transport in bulk according to Annex II of MARPOL and the IBC Code: No information available

IATA  
UN/ID no: UN1866  
Proper shipping name: RESIN SOLUTION  
Hazard Class: 3  
Packing Group: III  
Environmental hazard: None  
Packing Instructions: 355; 366

15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Denmark

List of substances and processes that are considered to be carcinogenic

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene (CAS #: 100-42-5)</td>
<td>Present</td>
</tr>
<tr>
<td>Cobalt bis(2-ethylhexanoate) (CAS #: 136-52-7)</td>
<td>Present (Cobalt compounds)</td>
</tr>
</tbody>
</table>

Additional information

Must not be used by youngsters under the age of 18, ref. the notification from the Ministry of Labour regarding work by youngsters. The user must have undergone special training approved by the Labour Inspection Authority (AT) in order to work with products containing carcinogenic substances.

Germany

WGK Classification (VwVwS)  
Hazardous to water/Class 2

Netherlands

List of Carcinogens, Mutagens and Reproductive Toxins  
No information available

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Carcinogen</th>
<th>Mutagenic</th>
<th>Reproductive toxicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene (CAS #: 100-42-5)</td>
<td></td>
<td></td>
<td>Development Category 2</td>
</tr>
</tbody>
</table>
No information available

**Water Hazard Class**
10-May cause long-term adverse effects in the aquatic environment.

**International Inventories**
- **TSCA Inventory Status:** All components of this material are listed on the US Toxic Substances Control Act (TSCA) inventory.
- **Canadian Inventory Status:** All components of this material are listed on the Canadian Domestic Substances List (DSL).
- **Australian Inventory Status:** This product contains one or more chemicals currently not on the Australian Inventory of Chemical Substances.
- **Korean Inventory Status:** This product contains one or more chemicals currently not on the Korean Chemical Substances List.
- **Philippine Inventory:** This product contains one or more chemicals currently not on the Philippine Inventory of Chemicals and Chemical Substances.
- **Japan ENCS:** This product contains one or more chemicals currently not on the Japanese Inventory of Existing and New Chemical Substances.
- **Chinese IECS:** This product contains only chemicals that are currently listed on the Chinese Inventory of Existing Chemical Substances.
- **New Zealand Inventory:** This product contains one or more chemicals currently not on the New Zealand Inventory of Chemicals.

**Product Registrations**
- **Norway** Not applicable

**15.2. Chemical Safety Assessment**
- **Chemical Safety Assessment** Not available

**Classification procedure:**
- Acute toxicity - Inhalation (Vapours) Calculation method
- Acute toxicity - Inhalation (Dusts/Mists) Calculation method
- Skin corrosion/irritation Calculation method
- Serious eye damage/eye irritation Calculation method
- Skin Sensitisation Calculation method
- Reproductive Toxicity Weight of evidence
- Specific target organ toxicity — single exposure Calculation method
- Specific target organ toxicity — repeated exposure Calculation method
- Chronic aquatic toxicity Calculation method
- Flammable liquid On basis of test data

**Full text of H-Statements referred to under section 3**
- H335 - May cause respiratory irritation
- H372 - Causes damage to organs (a,b,c) through prolonged or repeated exposure if inhaled
- H304 - May be fatal if swallowed and enters airways
- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H332 - Harmful if inhaled
- H226 - Flammable liquid and vapour
- H400 - Very toxic to aquatic life
- H361d - Suspected of damaging the unborn child
- H412 - Harmful to aquatic life with long lasting effects
H317 - May cause an allergic skin reaction
H361fd - Suspected of damaging fertility. Suspected of damaging the unborn child
H302 - Harmful if swallowed

Denmark Arbejdstilsynet Order no. 908 of 27 September 2005 with subsequent amendments

Prepared By
Polynt product regulatory department
Phone n. +39 035 652111

Revision Date
09/Nov/2018

Revision Note
Change to composition

Former date
1 November 2017

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End of Safety Data Sheet
1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier
Product Description: NORPOL® GM 90000 H

Other means of identification
SAP ID(s): 35853 ; 107493; 107494; 107496
Material Code: 35853
Chemical Family Polyester Resin

Recommended use of the chemical and restrictions on use
Recommended Use Gelcoat
Uses advised against No information available

Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Polynt Composites USA, Inc.
99 East Cottage Avenue
Carpentersville IL 60110

In Canada
Polynt Composites Canada Inc
29 Regan Road
Brampton, Ontario
L7A 1B2

Emergency Telephone
Chemtrec: 1-800-424-9300 (in U.S. & Canada)
+1-703-741-5970 (international)

E-mail address
MSDS@polynt.com

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 2A
Skin sensitization Sub-category 1B
Carcinogenicity Category 2
Specific target organ toxicity (single exposure) Category 3
Specific target organ toxicity (repeated exposure) Category 1
Flammable liquids Category 3

Label elements

Danger

Hazard statements
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
Suspected of causing cancer
May cause respiratory irritation
Causes damage to hearing through prolonged or repeated exposure if inhaled
Flammable liquid and vapor

Emergency Overview
Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Wash face, hands and any exposed skin thoroughly after handling
Contaminated work clothing must not be allowed out of the workplace
Do not breathe mist, vapors, spray
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ ventilating/ lighting/ equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
If skin irritation or rash occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
Wash contaminated clothing before reuse
IF INHALED: Remove person to fresh air and keep comfortable for breathing
In case of fire: Use CO2, dry chemical, or foam to extinguish

Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal
Dispose of contents/container to industrial incineration plant
Dispose of in accordance with federal, state and local regulations

Hazards not otherwise classified (HNOC)
Not applicable

Other Information
May be harmful if swallowed
May be harmful in contact with skin
Harmful to aquatic life with long lasting effects
Unknown acute toxicity

31 % of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>32 - 36</td>
<td></td>
</tr>
<tr>
<td>4,4'-Isopropylidene diphenol, oligomeric reaction products with</td>
<td>36425-16-8</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
First Aid Measures

Eye Contact
Immediately flush eyes for at least 15 minutes. Get medical attention.

Skin Contact
Wash off with warm water and soap. Remove contaminated clothing and shoes. If skin irritation persists, call a physician. Wash contaminated clothing before reuse.

Inhalation
Remove person to fresh air. If signs/symptoms continue, get medical attention. Keep patient warm and at rest. If not breathing, give artificial respiration. If breathing is labored, administer oxygen. Get medical attention immediately.

Ingestion
Do NOT induce vomiting. Potential for aspiration if swallowed. This material may enter the lungs during vomiting. Never give anything by mouth to an unconscious person. GET IMMEDIATE MEDICAL ATTENTION.

Most important symptoms and effects, both acute and delayed
Irritating to eyes, respiratory system and skin. Harmful by inhalation, in contact with skin and if swallowed. May cause allergic skin reaction.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

Notes to Physician

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Carbon dioxide (CO2), Foam, Dry chemical, Water spray

Unsuitable Extinguishing Media
Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Hazardous combustion products
Combustion may produce carbon monoxide, carbon dioxide and irritating or toxic vapors and gases

Combustion/explosion hazards
Flammable. Vapors may form explosive mixtures with air. Flash back possible over considerable distance. This material may polymerize (react) when its container is exposed to heat (as during a fire). This polymerization increases pressure inside a closed container and may result in the violent rupture of the container. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed. Closed containers may rupture when exposed to extreme heat.

Protective Equipment and Precautions for Firefighters
Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all protective equipment after use. Evacuate all persons from the fire area to a safe location. Move non-burning material, as feasible, to a safe
location as soon as possible. Fire fighters should be protected from potential explosion hazard while extinguishing the blaze. DO NOT extinguish a fire resulting from the flow of this flammable liquid until the flow of liquid is effectively shut off. This precaution will help prevent the accumulation of an explosive vapor-air mixture after the initial fire is extinguished. Use water spray to cool fire-exposed containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Remove all sources of ignition. Evacuate personnel to safe areas. Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Avoid contact with skin and eyes.

Other Information All equipment used when handling the product must be grounded.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Soak up with inert absorbent material and dispose of as hazardous waste. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods for Containment Prevent spilled material from 1) contaminating soil, 2) entering sanitary sewers, storm sewers, and drainage systems, and 3) entering bodies of water or ditches that lead to waterways. Prevent spreading over a wide area (e.g. by containment or oil barriers).

Methods for Clean-up Soak up with inert absorbent material. Remove from surface water (e.g. by skimming or siphoning). Dispose of contaminated material as waste according to item 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Do not breathe vapor or mist. Avoid contact with skin, eyes or clothing. Wash hands before breaks and immediately after handling the product. Take off contaminated clothing and wash before reuse. Ensure adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion-proof equipment. Consult your supplier of promoters and catalysts for additional instructions on proper mixing and usage. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed. Do not use compressed air for filling, discharging or handling.

Conditions for safe storage, including any incompatibilities

Storage Keep away from heat and sources of ignition. No smoking. Protect from direct sunlight. Keep containers tightly closed in a cool, well-ventilated place. To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 77°F (25°C).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits

Styrene (CAS #: 100-42-5) ACGIH TLV 20 ppm TWA
OSHA PEL
40 ppm STEL
A4 Not Classifiable as a Human Carcinogen

Industry PEL
While the federal workplace exposure limit for styrene is 100 ppm, OSHA accepted the styrene industry's proposal to voluntarily meet a PEL of 50 ppm on an 8 hour TWA and a Short Term Exposure Limit (STEL) of 100 ppm, 15 minute exposure.

Canada - Alberta OELs
40 ppm STEL
170 mg/m³ STEL
20 ppm TWA
85 mg/m³ TWA

Canada - Ontario OELs
35 ppm TWA
100 ppm STEL

Canada - British Columbia OELs
50 ppm TWA
75 ppm STEL

NIOSH IDLH
700 ppm

Mexico OEL
100 ppm STEL
425 mg/m³ STEL
50 ppm TWA
215 mg/m³ TWA
(skin)

Silica, Amorphous, Fumed, Cryst.-Free (CAS #: 112945-52-5)
OSHA PEL
20 mppcf, 80 mg/m³/%SiO₂ TWA

NIOSH IDLH
3000 mg/m³ - Immediately dangerous to life or health (IDLH)

Carbon Black (CAS #: 1333-86-4)
ACGIH TLV
3 mg/m³ TWA
A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans

OSHA PEL
3.5 mg/m³ TWA

Canada - Alberta OELs
3.5 mg/m³ TWA

Canada - Ontario OELs
3.5 mg/m³ TWA

Canada - British Columbia OELs
3 mg/m³ TWA

NIOSH IDLH
1750 mg/m³

Mexico OEL
7 mg/m³ STEL
3.5 mg/m³ TWA

Legend
ACGIH (American Conference of Governmental Industrial Hygienists)
TLV® (Threshold Limit Value)
TWA (time-weighted average)
STEL - Short Term Exposure Limit
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
OEL - Occupational Exposure Limit
NIOSH - National Institute for Occupational Safety and Health
IDLH - Immediately Dangerous to Life or Health
SKIN: Skin Absorption
mppcf - millions of particles per cubic foot

Appropriate engineering controls

Engineering Controls
Use general ventilation to maintain airborne concentrations to levels that are below regulatory and recommended occupational exposure limits. Local ventilation may be required during certain operations. Use explosion-proof electrical equipment.

Individual protection measures, such as personal protective equipment

Eye/face Protection
Safety glasses with side-shields. If splashes are likely to occur, tight sealing safety goggles. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin Protection
Wear protective nitrile rubber or Viton™ gloves. Gloves made of nitrile rubber or polyvinyl chloride (PVC) may be used for splash protection and brief or intermittent contact with
styrenated polyester resin. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Impervious clothing. Rubber or plastic boots.

Respiratory Protection

None required if hazards have been assessed and airborne concentrations are maintained below the exposure limits listed in Section 8. Wear an approved air-purifying respirator with organic vapor cartridges and particulate filters where airborne concentrations may exceed exposure limits in Section 8 and/or there is exposure to dust or mists due to sanding, grinding, cutting, or spraying. Use an approved positive-pressure air-supplied respirator with emergency escape provisions if there is any potential for an uncontrolled release, airborne concentrations are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Black</td>
</tr>
<tr>
<td>Odor</td>
<td>Pungent</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>0.2 ppm (Styrene)</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash point</td>
<td>32 °C / 89 °F</td>
</tr>
<tr>
<td>Flash Point Method</td>
<td>Seta closed cup (ISO 3679)</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>490°C / 914°F (Styrene)</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>146°C / 295°F (Styrene)</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>1.1% (Styrene)</td>
</tr>
<tr>
<td>Upper</td>
<td>6.1% (Styrene)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.17 - 1.27 @ 25°C</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble (Water)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>0.49 (BuAc = 1) (Styrene)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>5 mmHg @ 20°C (Styrene)</td>
</tr>
<tr>
<td></td>
<td>6.7 hPa (Styrene)</td>
</tr>
<tr>
<td>Vapor density</td>
<td>3.6 (Air = 1) (Styrene)</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Percent Volatile</td>
<td>33.0 % by weight</td>
</tr>
<tr>
<td>VOC Content</td>
<td>403 g/l (calculated) product as supplied</td>
</tr>
<tr>
<td>Viscosity</td>
<td>750 - 830 mPa·s @ 25°C</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity

Unstable upon depletion of inhibitor.

Chemical Stability

Stable under normal conditions. Stable under recommended storage conditions.

Possibility of Hazardous Reactions

Hazardous polymerization

Polymerization can occur. Hazardous polymerization will occur if contaminated with peroxides, metal salts and polymerization catalysts. Product will undergo hazardous polymerization at temperatures above 150 F (65 C). Hazardous polymerization may occur upon depletion of inhibitor - may cause heat and pressure build-up in closed containers.

Conditions to Avoid

**Incompatible materials**

**Hazardous decomposition products**
Hydrocarbons. Carbon monoxide. Carbon dioxide (CO2). Thermal decomposition can lead to release of irritating and toxic gases and vapors.

### 11. TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure

**Primary Routes of Entry**
Eye contact, Ingestion, Inhalation, Skin Contact, Skin absorption

**Acute toxicity**

<table>
<thead>
<tr>
<th>Material</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>= 5000 mg/kg</td>
<td>&gt; 2000 mg/kg</td>
<td>= 11.8 mg/l (4 H)</td>
</tr>
<tr>
<td>Silica, Amorphous, Fumed, Cryst.-Free</td>
<td>= 3160 mg/kg</td>
<td>&gt; 15400 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Carbon Black</td>
<td>&gt; 15400 mg/kg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Information on toxicological effects**

**Symptoms**
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Eyes**
Causes serious eye irritation.

**Skin**
May be harmful in contact with skin. Contact causes skin irritation. Prolonged skin contact may defat the skin and produce dermatitis.

**Inhalation**
May cause irritation of respiratory tract. Inhalation of high vapor concentrations can cause central nervous system depression and narcosis.

**Ingestion**
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion is not an anticipated route of exposure for this material in industrial use.

**Irritation**
Irritating to eyes and skin.

**Corrosivity**
Not corrosive.

**Sensitization**
May cause sensitization of susceptible persons by skin contact.

**Repeated dose toxicity**
In humans, styrene may cause a transient decrease in color discrimination and effects on hearing. Repeated or prolonged exposure may cause skin irritation and dermatitis, due to defatting properties of the product. May cause damage to the kidneys, liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled. May cause damage to the liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled.

**Mutagenic effects**
Styrene has given mixed positive and negative results in a number of mutagenicity tests. Styrene was not mutagenic without metabolic activation but gave negative and positive mutagenic results with metabolic activation.

**Carcinogenicity**
Styrene has caused lung tumors in the mouse but not in the rat. There is strong evidence that the mechanism of this tumor formation in mice is species- and organ-specific and is therefore not relevant to humans. Some, but not all, epidemiology studies have found small
increases in cancers of the lymph and blood-forming systems associated with certain, but not all, styrene exposure metrics. However, when considered as a whole, there are no consistent increases in incidence of, or mortality from, any type of cancer among studies of individuals exposed to styrene. Sanding, grinding or cutting a cured plastic material manufactured from this product, may release carbon black particles. Carbon black is considered an IARC 2B carcinogen. Recent evidence indicates that the phenomenon of carcinogenicity in the rat lung is species-specific, resulting from persistent overloading of the rat lung with poorly soluble particles <1.0 micrometer in diameter. Mortality studies of carbon black manufacturing workers do not show an association between carbon black exposure and elevated lung cancer rates.

<table>
<thead>
<tr>
<th>Styrene</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A4 - Not Classifiable as a Human Carcinogen</td>
<td>Group 2B - Possibly Carcinogenic to Humans</td>
<td>Reasonably anticipated to be human carcinogen</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Carbon Black</th>
<th>IARC</th>
<th>Group 2B - Possibly Carcinogenic to Humans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt bis(2-ethylhexanoate)</td>
<td>IARC</td>
<td>Group 2B - Possibly Carcinogenic to Humans</td>
</tr>
</tbody>
</table>

Legend

*ACGIH (American Conference of Governmental Industrial Hygienists)*
*IARC - International Agency for Research on Cancer*
*NTP - National Toxicology Program*

**Reproductive Toxicity**
No information available.

**Neurological effects**
No information available.

**STOT - single exposure**
No information available.

**STOT - repeated exposure**
No information available.

**Target organ effects**
Liver, Kidney, Central nervous system (CNS), Respiratory system, Skin.

**Aspiration hazard**
No information available.

**Unknown acute toxicity**
31 % of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on chapter 3.1 of the GHS document .

- **ATEmix (oral)** 3091 mg/kg
- **ATEmix (dermal)** 2150 mg/kg mg/L
- **ATEmix (inhalation-vapor)** 23.7 mg/L

### 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Styrene**
- Partition coefficient 2.95
- Bioconcentration factor (BCF) 74
- Algae
  - EC50 1.4 mg/L (Pseudokirchneriella subcapitata) (72h)
  - EC50 0.46 - 4.3 mg/L (Pseudokirchneriella subcapitata) (72h)
- Fish
  - LC50 3.24 - 4.99 mg/L (Pimephales promelas) (96 h) flow-through
  - LC50 19.03 - 33.53 mg/L (Lepomis macrochirus) (96 h) static
  - LC50 6.75 - 14.5 mg/L (Pimephales promelas) (96 h) static
  - LC50 58.75 - 95.32 mg/L (Poecilia reticulata) (96 h) static
- Crustacea
  - EC50 3.3 - 7.4 mg/L 48 h

**Carbon Black**
- Crustacea EC50 > 5600 mg/L 24 h

**Cobalt bis(2-ethylhexanoate)**
- Algae EC50 = 0.639 mg/L

**Persistence/Degradability**
No information available.
Bioaccumulation
No information available.

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal Considerations
Hazardous waste. Can be incinerated, when in compliance with local regulations.

Contaminated packaging
Empty containers should be taken for local recycling, recovery or waste disposal.

US EPA Waste Number
D001 (IGNITABLE): When discarded in its purchased form, this material would be regulated under 40 CFR 261.21 as EPA Hazardous Waste Number D001 based on the characteristic of ignitability.

14. TRANSPORT INFORMATION

DOT

UN/ID no. UN1866
Proper shipping name RESIN SOLUTION
Hazard Class 3
Packing Group III
NAERG: 127

TDG

UN/ID no. UN1866
Proper shipping name RESIN SOLUTION
Hazard Class CLASS 3
Packing Group PG III
NAERG: 127

MEX

UN/ID no. UN1866
Proper shipping name RESIN SOLUTION
Hazard Class CLASS 3
Packing Group PG III
NAERG: 127

IATA

UN/ID no. UN1866
Proper shipping name RESIN SOLUTION
Hazard Class 3
Packing Group III
Packing Instructions 355; 366
NAERG: 127

IMDG/IMO

UN/ID no. UN1866
Proper shipping name RESIN SOLUTION
Hazard Class CLASS 3
Packing Group PG III
EmS-No F-E, S-E
NAERG: 127
15. REGULATORY INFORMATION

International Inventories

**TSCA Inventory Status:** All components of this material are listed on the US Toxic Substances Control Act (TSCA) inventory.

**Canadian Inventory Status:** This material contains components that are NOT listed on the Canadian Domestic Substances List (DSL).

**Australian Inventory Status:** This product contains one or more chemicals currently not on the Australian Inventory of Chemical Substances.

**Korean Inventory Status:** This product contains one or more chemicals currently not on the Korean Chemical Substances List.

**Philippine Inventory:** This product contains one or more chemicals currently not on the Philippine Inventory of Chemicals and Chemical Substances.

**Japan ENCS:** This product contains one or more chemicals currently not on the Japanese Inventory of Existing and New Chemical Substances.

**Chinese IECS:** This product contains one or more chemicals currently not on the Chinese Inventory of Existing Chemical Substances.

**New Zealand Inventory:** This product contains one or more chemicals currently not on the New Zealand Inventory of Chemicals.

US Federal Regulations

**TSCA 12(b) - Export Notification:** This material does not contain any components that are subject to the US Toxic Substances Control Act (TSCA) Section 12(b) Export Notification requirements.

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and and Title 40 of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>SARA 313 Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>32 - 36</td>
<td>Listed</td>
</tr>
<tr>
<td>Cobalt bis(2-ethylhexanoate)</td>
<td>136-52-7</td>
<td>&lt;0.2</td>
<td>Listed</td>
</tr>
</tbody>
</table>

**EPCRA: Emergency Planning and Community Right-to-Know Act**
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)**
This product contains the following listed substances:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>1000 lb</td>
<td></td>
<td></td>
<td>Listed</td>
</tr>
</tbody>
</table>

**Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)**
This product contains the following HAPs:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>HAPS data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>32 - 36</td>
<td>Listed</td>
</tr>
<tr>
<td>Cobalt bis(2-ethylhexanoate)</td>
<td>136-52-7</td>
<td>&lt;0.2</td>
<td>Listed</td>
</tr>
</tbody>
</table>

**CERCLA**
This product contains the following reportable quantities:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>40 CFR 302.4 RQ</th>
<th>40 CFR 355 EHS TPQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>1000 lb</td>
<td>454 kg</td>
</tr>
</tbody>
</table>
Chemical Weapons Convention (CWC)
This product does not contain any listed substances.

State Regulations

California Proposition 65
WARNING: This material contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. The California Safe Drinking Water and Toxic Enforcement Act of 1986 requires that clear and reasonable warning be given prior to exposing any person to this chemical.

Canada
This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

16. OTHER INFORMATION

NFPA Rating
Prepared By Polynt Regulatory Department
Revision Date 28/Dec/2017
Revision Note None

Former date New

This information is provided in good faith and is correct to the best of Polynt's knowledge as of the date hereof and is designed to assist our customers; however, Polynt makes no representation as to its completeness or accuracy. Our products are intended for sale to industrial and commercial customers. We require customers to inspect and test our products before use and to satisfy themselves as to suitability for their specific applications. Any use which Polynt customers or third parties make of this information, or any reliance on, or decisions made based upon it, are the responsibility of such customer or third party. Polynt disclaims responsibility for damages, or liability, of any kind resulting from the use of this information. THERE ARE NO WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, INCLUDING THOSE OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THIS INFORMATION OR TO THE PRODUCT IT DESCRIBES. IN NO EVENT SHALL POLYNT BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

End of Safety Data Sheet
SAFETY DATA SHEET
CB M1-04 Cart 400ml

Section 1. Identification

Product identifier : CB M1-04 Cart 400ml
Other means of identification : Not available.
Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Identified uses
Adhesive.

Supplier
Scott Bader Co Ltd, Wollaston, Northants NN297RL United Kingdom
+44 (0)1933663100

e-mail address of person responsible for this SDS
SDS@scottbader.com

Emergency telephone number (with hours of operation)
+44 (0) 1933 663399 (24h)

Section 2. Hazard identification

Classification of the substance or mixture:
FLAMMABLE LIQUIDS - Category 2
SKIN CORROSION - Category 1A
SERIOUS EYE DAMAGE - Category 1
RESPIRATORY SENSITIZATION - Category 1
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 1
Health Hazards Not Otherwise Classified - Category 1

GHS label elements

Hazard pictograms:

Signal word: Danger

Hazard statements:
Highly flammable liquid and vapor.
Causes severe digestive tract burns.
Causes severe skin burns and eye damage.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Suspected of damaging the unborn child.
Suspected of causing cancer.
May cause respiratory irritation.
Causes damage to organs through prolonged or repeated exposure. (hearing organs)

Precautionary statements

Date of issue/Date of revision : 3/3/2016
Date of previous issue : 2/19/2016
Version : 1.02
1/15
Section 2. Hazard identification

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Wear respiratory protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

Response: Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. If experiencing respiratory symptoms: Call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Storage: Store locked up.

Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements: Do not taste or swallow. Wash thoroughly after handling.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture

Other means of identification: Not available.

CAS number/other identifiers

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>% (w/w)</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyl methacrylate</td>
<td>37.314</td>
<td>80-62-6</td>
</tr>
<tr>
<td>methacrylic acid</td>
<td>6.75</td>
<td>79-41-4</td>
</tr>
<tr>
<td>styrene</td>
<td>2.4182</td>
<td>100-42-5</td>
</tr>
<tr>
<td>dibenzoyl peroxide</td>
<td>&lt;1</td>
<td>94-36-0</td>
</tr>
<tr>
<td>dibutyl maleate</td>
<td>&lt;0.81</td>
<td>105-76-0</td>
</tr>
<tr>
<td>rosin</td>
<td>≥0.1269</td>
<td>8050-09-7</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td></td>
<td>13463-67-7</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures: Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
Section 4. First-aid measures

Inhalation: Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In the event of any complaints or symptoms, avoid further exposure.

Skin contact: Get medical attention immediately. Call a poison center or physician. Wash out with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact: Causes serious eye damage.

Inhalation: May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin contact: Causes severe burns. May cause an allergic skin reaction.

Ingestion: Severely corrosive to the digestive tract. Causes severe burns.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following:
- pain
- watering
- redness

Inhalation: Adverse symptoms may include the following:
- respiratory tract irritation
- coughing
- wheezing and breathing difficulties
- asthma
- reduced fetal weight
- increase in fetal deaths
- skeletal malformations

Skin contact: Adverse symptoms may include the following:
- pain or irritation
- redness
- blistering may occur
- reduced fetal weight
- increase in fetal deaths
- skeletal malformations

Date of issue/Date of revision: 3/3/2016
Date of previous issue: 2/19/2016
Version: 1.02
Section 4. First-aid measures

**Ingestion**
Adverse symptoms may include the following:
- stomach pains
- reduced fetal weight
- increase in fetal deaths
- skeletal malformations

**Indication of immediate medical attention and special treatment needed, if necessary**

**Notes to physician**
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**Specific treatments**
No specific treatment.

**Protection of first-aiders**
No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing media**
Use dry chemical, CO₂, water spray (fog) or foam.

**Unsuitable extinguishing media**
Do not use water jet.

**Specific hazards arising from the chemical**
Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

**Hazardous thermal decomposition products**
Decomposition products may include the following materials:
- carbon dioxide
- carbon monoxide
- halogenated compounds

**Special protective actions for fire-fighters**
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for fire-fighters**
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel**
No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders**
If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions**
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Section 6. Accidental release measures

Methods and materials for containment and cleaning up

Small spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits
## Section 8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>methyl methacrylate</strong></td>
<td>CA Alberta Provincial (Canada, 4/2009). 8 hrs OEL: 205 mg/m³ 8 hours. 8 hrs OEL: 50 ppm 8 hours. 15 min OEL: 410 mg/m³ 15 minutes. 15 min OEL: 100 ppm 15 minutes. CA British Columbia Provincial (Canada, 5/2015). Skin sensitizer. TWA: 50 ppm 8 hours. STEL: 100 ppm 15 minutes. CA Ontario Provincial (Canada, 7/2015). Skin sensitizer. TWA: 50 ppm 8 hours. STEL: 100 ppm 15 minutes. CA Quebec Provincial (Canada, 1/2014). Skin sensitizer. TWA: 50 ppm 8 hours. TWA: 205 mg/m³ 8 hours. CA Saskatchewan Provincial (Canada). Skin sensitizer. STEL: 100 ppm 15 minutes. TWA: 50 ppm 8 hours.</td>
</tr>
<tr>
<td><strong>methacrylic acid</strong></td>
<td>CA Alberta Provincial (Canada, 4/2009). 8 hrs OEL: 20 ppm 8 hours. 8 hrs OEL: 70 mg/m³ 8 hours. CA British Columbia Provincial (Canada, 5/2015). TWA: 20 ppm 8 hours. CA Ontario Provincial (Canada, 7/2015). TWA: 20 ppm 8 hours. TWA: 70 mg/m³ 8 hours. CA Quebec Provincial (Canada, 1/2014). TWA: 20 ppm 8 hours. TWA: 70 mg/m³ 8 hours. CA Saskatchewan Provincial (Canada). STEL: 30 ppm 15 minutes. TWA: 20 ppm 8 hours.</td>
</tr>
<tr>
<td><strong>styrene</strong></td>
<td>CA Alberta Provincial (Canada, 4/2009). 15 min OEL: 40 ppm 15 minutes. 15 min OEL: 170 mg/m³ 15 minutes. 8 hrs OEL: 85 mg/m³ 8 hours. 8 hrs OEL: 20 ppm 8 hours. CA British Columbia Provincial (Canada, 5/2015). TWA: 50 ppm 8 hours. STEL: 75 ppm 15 minutes. CA Ontario Provincial (Canada, 7/2015). TWA: 35 ppm 8 hours. STEL: 100 ppm 15 minutes. CA Quebec Provincial (Canada, 1/2014). Absorbed through skin. TWA: 50 ppm 8 hours. TWA: 213 mg/m³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 426 mg/m³ 15 minutes. CA Saskatchewan Provincial (Canada). STEL: 40 ppm 15 minutes. TWA: 20 ppm 8 hours.</td>
</tr>
<tr>
<td><strong>dibenzoyl peroxide</strong></td>
<td>CA Alberta Provincial (Canada, 4/2009). 8 hrs OEL: 5 mg/m³ 8 hours.</td>
</tr>
</tbody>
</table>

### Date of issue/Date of revision: 3/3/2016  Date of previous issue: 2/19/2016  Version: 1.02
Section 8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Exposure Limits/NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>rosin</td>
<td>CA British Columbia Provincial (Canada, 5/2015). TWA: 5 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>CA Ontario Provincial (Canada, 7/2015). TWA: 5 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>CA Quebec Provincial (Canada, 1/2014). TWA: 5 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>CA Saskatchewan Provincial (Canada). STEL: 10 mg/m³ 15 minutes. TWA: 5 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>CA Quebec Provincial (Canada, 1/2014). Skin sensitizer. TWAEV: 0.1 mg/m³, (formaldehyde) 8 hours.</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>CA British Columbia Provincial (Canada, 5/2015). TWA: 3 mg/m³ 8 hours. Form: Respirable dust.</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 mg/m³ 8 hours. Form: Total dust.</td>
</tr>
<tr>
<td></td>
<td>CA Quebec Provincial (Canada, 1/2014). TWAEV: 10 mg/m³ 8 hours. Form: Total dust.</td>
</tr>
<tr>
<td></td>
<td>CA Alberta Provincial (Canada, 4/2009). 8 hrs OEL: 10 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>CA Ontario Provincial (Canada, 7/2015). TWA: 10 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>CA Saskatchewan Provincial (Canada). STEL: 20 mg/m³ 15 minutes. TWA: 10 mg/m³ 8 hours.</td>
</tr>
</tbody>
</table>

**Appropriate engineering controls**

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Environmental exposure controls**

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**Individual protection measures**

**Hygiene measures**

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection**

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

**Skin protection**
Section 8. Exposure controls/personal protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Off-white</td>
</tr>
<tr>
<td>Odor</td>
<td>Strong Acrylic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>Closed cup: 12°C (53.6°F)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Lower and upper explosive (flammable) limits</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.96 to 1.02</td>
</tr>
<tr>
<td>Solubility</td>
<td>Not available.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Kinematic (40°C (104°F)): &gt;0.4 cm²/s (&gt;40 cSt)</td>
</tr>
</tbody>
</table>

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.
Section 10. Stability and reactivity

**Conditions to avoid**
Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

**Incompatible materials**
Reactive or incompatible with the following materials:
- oxidizing materials

**Hazardous decomposition products**
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

**Information on toxicological effects**

**Acute toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyl methacrylate</td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>78000 mg/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>&gt;5 g/kg</td>
<td>-</td>
</tr>
<tr>
<td>methacrylic acid</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>7872 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>LD50 Oral</td>
<td></td>
<td>Rabbit</td>
<td>500 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>LD50 Oral</td>
<td></td>
<td>Rat</td>
<td>1060 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>styrene</td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>2770 ppm</td>
<td>4 hours</td>
</tr>
<tr>
<td>LD50 Inhalation Vapor</td>
<td></td>
<td>Rat</td>
<td>11800 mg/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td>LD50 Dermal</td>
<td></td>
<td>Rat</td>
<td>&gt;2000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>LD50 Oral</td>
<td></td>
<td>Rat</td>
<td>2650 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>dibenzoyl peroxide</td>
<td>LC50 Inhalation Dusts and mists</td>
<td>Rat</td>
<td>&gt;24300 mg/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td>LD50 Oral</td>
<td></td>
<td>Rat</td>
<td>6400 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>dibutyl maleate</td>
<td>LC50 Inhalation Dusts and mists</td>
<td>Rat</td>
<td>&gt;5 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td>LD50 Dermal</td>
<td></td>
<td>Rabbit</td>
<td>10 g/kg</td>
<td>-</td>
</tr>
<tr>
<td>LD50 Oral</td>
<td></td>
<td>Rabbit</td>
<td>3700 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>LD50 Oral</td>
<td></td>
<td>Rat</td>
<td>7600 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>rosin</td>
<td></td>
<td>Rat</td>
<td>&gt;6.8 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>LC50 Inhalation Dusts and mists</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>LD50 Oral</td>
<td></td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Irritation/Corrosion**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>Eyes - Mild irritant</td>
<td>Human</td>
<td>-</td>
<td>50 parts per million</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>dibutyl maleate</td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 Percent 100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 milligrams</td>
<td>-</td>
</tr>
</tbody>
</table>

**Sensitization**
Not available.

**Mutagenicity**
Not available.

**Carcinogenicity**
Not available.

**Reproductive toxicity**
Not available.

**Teratogenicity**
Not available.
Section 11. Toxicological information

Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyl methacrylate</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>methacrylic acid</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>Category 1</td>
<td>Not determined</td>
<td>hearing organs</td>
</tr>
<tr>
<td>dibutyl maleate</td>
<td>Category 2</td>
<td>Oral</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

Aspiration hazard
Not available.

Information on the likely routes of exposure
Not available.

Potential acute health effects

Eye contact
Causes serious eye damage.

Inhalation
May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin contact
Causes severe burns. May cause an allergic skin reaction.

Ingestion
Severely corrosive to the digestive tract. Causes severe burns.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact
Adverse symptoms may include the following:
- pain
- watering
- redness

Inhalation
Adverse symptoms may include the following:
- respiratory tract irritation
- coughing
- wheezing and breathing difficulties
- asthma
- reduced fetal weight
- increase in fetal deaths
- skeletal malformations

Skin contact
Adverse symptoms may include the following:
- pain or irritation
- redness
- blistering may occur
- reduced fetal weight
- increase in fetal deaths
- skeletal malformations

Ingestion
Adverse symptoms may include the following:
- stomach pains
- reduced fetal weight
- increase in fetal deaths
- skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure
Not available.

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### Section 11. Toxicological information

#### Potential delayed effects
- Not available.

#### Long term exposure

#### Potential immediate effects
- Not available.

#### Potential delayed effects
- Not available.

#### Potential chronic health effects

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>methacrylic acid</td>
<td>Chronic NOAEL Inhalation</td>
<td>Rat</td>
<td>300 ppm</td>
<td>90 days</td>
</tr>
<tr>
<td></td>
<td>Gas.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronic NOAEL Inhalation</td>
<td>Rat</td>
<td>100 ppm</td>
<td>90 days</td>
</tr>
<tr>
<td></td>
<td>Gas.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronic NOAEL Dermal</td>
<td>Rat</td>
<td>615 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Gas.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronic NOAEL Inhalation</td>
<td>Rat</td>
<td>20 ppm</td>
<td>8 hours</td>
</tr>
<tr>
<td></td>
<td>Gas.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### General
- Causes damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

#### Carcinogenicity
- Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

#### Mutagenicity
- No known significant effects or critical hazards.

#### Teratogenicity
- Suspected of damaging the unborn child.

#### Developmental effects
- No known significant effects or critical hazards.

#### Fertility effects
- No known significant effects or critical hazards.

#### Numerical measures of toxicity

##### Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>10129.6 mg/kg</td>
</tr>
<tr>
<td>Dermal</td>
<td>6428.4 mg/kg</td>
</tr>
<tr>
<td>Inhalation (gases)</td>
<td>99408 ppm</td>
</tr>
<tr>
<td>Inhalation (vapors)</td>
<td>423.5 mg/l</td>
</tr>
<tr>
<td>Inhalation (dusts and mists)</td>
<td>19.29 mg/l</td>
</tr>
</tbody>
</table>

### Section 12. Ecological information

#### Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyl methacrylate</td>
<td>Acute LC50 130000 µg/l Fresh water</td>
<td>Fish - Pimephales promelas - Adult</td>
<td>96 hours</td>
</tr>
<tr>
<td>methacrylic acid</td>
<td>EC50 45 mg/l</td>
<td>Algae</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>EC50 &gt;130 mg/l</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 85 mg/l</td>
<td>Fish</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 53 mg/l Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>21 days</td>
</tr>
<tr>
<td>styrene</td>
<td>Acute EC50 1400 µg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 33 mg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 4700 µg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 52000 µg/l Marine water</td>
<td>Crustaceans - Artemia salina - Naupli</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 1.01 mg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>EC50 0.06 mg/l</td>
<td>Daphnia</td>
<td>21 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Algae</td>
<td>72 hours</td>
</tr>
</tbody>
</table>
Section 12. Ecological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>methacrylic acid</td>
<td>-</td>
<td>86 % - 28 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>dibutyl maleate</td>
<td>-</td>
<td>95 % - Readily - 19 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>rosin</td>
<td>-</td>
<td>84 % - 28 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>methacrylic acid</td>
<td>-</td>
<td>Readily</td>
<td></td>
</tr>
<tr>
<td>styrene</td>
<td>-</td>
<td>Readily</td>
<td></td>
</tr>
<tr>
<td>dibenzoyl peroxide</td>
<td>-</td>
<td>Inherent</td>
<td></td>
</tr>
<tr>
<td>dibutyl maleate</td>
<td>-</td>
<td>Readily</td>
<td></td>
</tr>
<tr>
<td>rosin</td>
<td>-</td>
<td>Readily</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP_{ow}</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyl methacrylate</td>
<td>1.38</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>methacrylic acid</td>
<td>0.93</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>styrene</td>
<td>0.35</td>
<td>13.49</td>
<td>low</td>
</tr>
<tr>
<td>dibenzoyl peroxide</td>
<td>3.2</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>dibutyl maleate</td>
<td>3.39</td>
<td>81.34</td>
<td>low</td>
</tr>
<tr>
<td>rosin</td>
<td>1.9 to 7.7</td>
<td>56.3</td>
<td>low</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>-</td>
<td>352</td>
<td>low</td>
</tr>
</tbody>
</table>

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Section 14. Transport information

<table>
<thead>
<tr>
<th>UN number</th>
<th>TDG Classification</th>
<th>DOT Classification</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN1133</td>
<td>ADHESIVES</td>
<td>ADHESIVES</td>
<td>ADHESIVES</td>
<td>ADHESIVES</td>
<td>ADHESIVES</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Packing group</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>Yes.</td>
<td>No.</td>
<td>Yes.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>Additional information</td>
<td>Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.7 (Marine pollutant mark). The marine pollutant mark is not required when transported by road or rail.</td>
<td>Reportable quantity 2679.9 lbs / 1216.7 kg [324.66 gal / 1229 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.</td>
<td>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. Special provisions 640 (C) Tunnel code (D/E)</td>
<td>The environmentally hazardous substance mark may appear if required by other transportation regulations.</td>
<td></td>
</tr>
</tbody>
</table>

Special precautions for user: Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code: Not available.

Section 15. Regulatory information

Canadian lists
- Canadian NPRI: The following components are listed: Methyl methacrylate; Styrene; Benzoyl peroxide
- CEPA Toxic substances: None of the components are listed.
- Canada inventory: Not determined.

International regulations
Section 15. Regulatory information

Stockholm Convention on Persistent Organic Pollutants
Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)
Not listed.

UNEP/Aarhus Protocol on POPs and Heavy Metals
Not listed.

Inventory list

Australia : Not determined.
China : At least one component is not listed.
Europe : Not determined.
Japan : Japan inventory (ENCS): Not determined.
Japan inventory (ISHL): Not determined.
Malaysia : Not determined.
New Zealand : Not determined.
Philippines : At least one component is not listed.
Republic of Korea : At least one component is not listed.
Taiwan : Not determined.
Turkey : Not determined.
United States : Not determined.

Section 16. Other information

History
Date of printing : 3/3/2016
Date of issue/Date of revision : 3/3/2016
Date of previous issue : 2/19/2016
Version : 1.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations
HPR = Hazardous Products Regulations

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAMMABLE LIQUIDS - Category 2</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>SKIN CORROSION - Category 1A</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SERIOUS EYE DAMAGE - Category 1</td>
<td>Calculation method</td>
</tr>
<tr>
<td>RESPIRATORY SENSITIZATION - Category 1</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SKIN SENSITIZATION - Category 1</td>
<td>Calculation method</td>
</tr>
<tr>
<td>CARCINOGENICITY - Category 2</td>
<td>Calculation method</td>
</tr>
<tr>
<td>TOXIC TO REPRODUCTION (Unborn child) - Category 2</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 1</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Health Hazards Not Otherwise Classified - Category 1</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>
Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.
SAFETY DATA SHEET
NOROX MCP-75 FRED

SECTION 1. IDENTIFICATION

Product name : NOROX MCP-75 FRED

Manufacturer or supplier's details
Company name of supplier : United Initiators, Inc.
Address : 555 Garden Street
           Elyria OH 44035
Telephone : +1-440-323-3112
Telefax : +1-440-323-2859

Emergency telephone : CHEMTREC US (24h):
                      +1-800-424-9300
                      CHEMTREC WORLD (24h):
                      +1-703-527-3887
E-mail address of person responsible for the SDS : cs-initiators.nafta@united-in.com

Recommended use of the chemical and restrictions on use
Recommended use : Hardener

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200
Flammable liquids : Category 4
Organic peroxides : Type D
Acute toxicity (Oral) : Category 4
Acute toxicity (Inhalation) : Category 4
Skin corrosion : Category 1B
Serious eye damage : Category 1
Reproductive toxicity : Category 1B
Specific target organ systemic toxicity - repeated exposure : Category 2
Acute aquatic toxicity : Category 2
Chronic aquatic toxicity : Category 3

GHS label elements
SAFETY DATA SHEET

NOROX MCP-75 FRED

Version: 1.3  
Revision Date: 11/06/2017  
SDS Number: 600000000088  
Print Date: 01/24/2018

Hazard pictograms:

Signal Word: Danger

Hazard Statements:
- H227 Combustible liquid.
- H242 Heating may cause a fire.
- H302 + H332 Harmful if swallowed or if inhaled.
- H314 Causes severe skin burns and eye damage.
- H305 May damage fertility or the unborn child.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H401 Toxic to aquatic life.
- H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements:

Prevention:
- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P220 Keep/Store away from clothing/strong acids, bases, heavy metal salts and other reducing substances/combustible materials.
- P234 Keep only in original container.
- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:
- P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
- P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
- P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
- P308 + P313 IF exposed or concerned: Get medical advice/attention.
- P363 Wash contaminated clothing before reuse.
- P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.
SAFETY DATA SHEET

NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/06/2017  SDS Number: 600000000088  Print Date: 01/24/2018

Storage:
P405 Store locked up.
P410 Protect from sunlight.
P411 + P235 Store at temperatures not exceeding < 100 °F/ < 38 °C. Keep cool.
P420 Store away from other materials.

Disposal:
P501 Dispose of contents/container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture
Chemical nature : Organic Peroxide
                  Liquid mixture

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl phthalate</td>
<td>131-11-3</td>
<td>&gt;= 30 - &lt; 35</td>
</tr>
<tr>
<td>2-Butanone, peroxide</td>
<td>1338-23-4</td>
<td>&gt;= 25 - &lt; 30</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>80-15-9</td>
<td>&gt;= 20 - &lt; 25</td>
</tr>
<tr>
<td>Trimethylpentanediol isobutyrate</td>
<td>6846-50-0</td>
<td>&gt;= 10 - &lt; 15</td>
</tr>
<tr>
<td>Acetophenone</td>
<td>98-86-2</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>Cumene</td>
<td>98-82-8</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>Butanone</td>
<td>78-03-3</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>Benzenemethanol, alpha,alpha-dimethyl-</td>
<td>617-94-7</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this material safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
Symptoms of poisoning may appear several hours later.
Call a physician immediately.

If inhaled : Call a physician or poison control center immediately.
If unconscious, place in recovery position and seek medical advice.
Keep respiratory tract clear.
Call a physician immediately.
If breathed in, move person into fresh air.

In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Wash contaminated clothing before re-use.
If on skin, rinse well with water.
If on clothes, remove clothes.
If symptoms persist, call a physician.

In case of eye contact: Small amounts splashed into eyes can cause irreversible tissue damage and blindness. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue rinsing eyes during transport to hospital. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed: Keep respiratory tract clear. Do NOT induce vomiting. Call a physician immediately. Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed: Harmful if swallowed or if inhaled. Causes serious eye damage. May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Causes severe burns.

Protection of first-aiders: First Aid responders should pay attention to self-protection and use the recommended protective clothing.

Notes to physician: Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media: High volume water jet

Specific hazards during fire fighting: Contact with incompatible materials or exposure to temperatures exceeding SADT may result in a self-accelerating decomposition reaction with release of flammable vapors which may auto-ignite.

Flash back possible over considerable distance. Vapors may form explosive mixtures with air. Cool closed containers exposed to fire with water spray.

Specific extinguishing methods: Do not use a solid water stream as it may scatter and spread fire. Remove undamaged containers from fire area if it is safe to do
so.
Use water spray to cool unopened containers.

Further information
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Special protective equipment for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
- Use personal protective equipment.
- Remove all sources of ignition.
- Follow safe handling advice and personal protective equipment recommendations.
- Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- Never return spills to original containers for re-use.
- Treat recovered material as described in the section "Disposal considerations".

Environmental precautions
- Prevent product from entering drains.
- Prevent further leakage or spillage if safe to do so.
- If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up
- Contact with incompatible substances can cause decomposition at or below SADT.
- Clear spills immediately.
- Suppress (knock down) gases/vapors/mists with a water spray jet.
- To clean the floor and all objects contaminated by this material, use plenty of water.
- Soak up with inert absorbent material.
- Isolate waste and do not reuse.
- Non-sparking tools should be used.
- Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.

SECTION 7. HANDLING AND STORAGE

Technical measures
See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Advice on protection against
Keep away from heat and sources of ignition. Use only
SAFETY DATA SHEET
NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/06/2017  SDS Number: 600000000088  Print Date: 01/24/2018

fire and explosion: explosion-proof equipment. Keep away from combustible material.

Advice on safe handling: Do not swallow.
Do not breathe vapors/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
Avoid formation of aerosol.
Take precautionary measures against static discharges.
Never return any product to the container from which it was originally removed.
Provide sufficient air exchange and exhaust in work rooms.
Avoid confinement.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Smoking, eating and drinking should be prohibited in the application area.
Wash thoroughly after handling.
For personal protection see section 8.
Protect from contamination.

Conditions for safe storage: Avoid impurities (e.g. rust, dust, ash), risk of decomposition.
Electrical installations / working materials must comply with the technological safety standards.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Store in original container.
Keep containers tightly closed in a cool, well-ventilated place.
Store in accordance with the particular national regulations.

Materials to avoid: Keep away from strong acids, bases, heavy metal salts and other reducing substances.

Recommended storage temperature: < 100 °F
< 38 °C

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl phthalate</td>
<td>131-11-3</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>OSHA P0</td>
</tr>
<tr>
<td>2-Butanone, peroxide</td>
<td>1338-23-4</td>
<td>C</td>
<td>0.2 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>0.2 ppm 1.5 mg/m³</td>
<td>NIOSH REL</td>
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<td></td>
<td>C</td>
<td>0.7 ppm 5 mg/m³</td>
<td>OSHA P0</td>
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SAFETY DATA SHEET
NOROX MCP-75 FRED

Version 1.3  
Revision Date: 11/06/2017  
SDS Number: 600000000088  
Print Date: 01/24/2018

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<th>Ingredients</th>
<th>CAS-No.</th>
<th>TWA</th>
<th>STEL</th>
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<td>80-15-9</td>
<td>1 ppm</td>
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<td>acetophenone</td>
<td>98-85-2</td>
<td>10 ppm</td>
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<td>Cumene</td>
<td>98-82-8</td>
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<td>245 mg/m³</td>
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<td>60 ppm</td>
<td>245 mg/m³</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>60 ppm</td>
<td>245 mg/m³</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Butanone</td>
<td>78-93-3</td>
<td>200 ppm</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td>1 ppm</td>
<td>1.4 mg/m³</td>
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<tr>
<td></td>
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<td>1 ppm</td>
<td>1.4 mg/m³</td>
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<td></td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>10 ppm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hazards: components without workplace control parameters

Ingredients | CAS-No. |
------------|---------|
Trimethylpentanediol isobutyrate | 6846-50-0 |
Benzenemethanol, alpha, alpha-dimethyl- | 617-94-7 |

Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butanone</td>
<td>78-93-3</td>
<td>methyl ethyl ketone</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>2 mg/l</td>
<td>ACGIH BEI</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>5-Hydroxy-N-methyl-2-pyrrolidone</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>100 mg/l</td>
<td>ACGIH BEI</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/06/2017  SDS Number: 600000000088  Print Date: 01/24/2018

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Engineering measures: Minimize workplace exposure concentrations.

Personal protective equipment
Respiratory protection: In the case of dust or aerosol formation use respirator with an approved filter.
Filter type: ABEK-filter

Hand protection
Material: butyl-rubber
Break through time: >= 480 min
Glove thickness: 0.5 mm

Remarks: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove Wash hands before breaks and at the end of workday.

Eye protection: Tightly fitting safety goggles. Please wear suitable protective goggles. Also wear face protection if there is a splash hazard. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection: Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.

Hygiene measures: Keep away from food and drink. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid
Color: red
Odor: slight
pH: No data available
Melting point/range: No data available
Boiling point/boiling range : Decomposition: Decomposes below the boiling point.
Flash point : > 85 °C
Evaporation rate : No data available
Flammability (solid, gas) : Not applicable
Upper explosion limit : No data available
Lower explosion limit : No data available
Vapor pressure : No data available
Relative vapor density : > 1
Density : 1.0 g/cm³

Solubility(ies)
Water solubility : soluble

Partition coefficient: n-octanol/water : No data available

Self-Accelerating decomposition temperature (SADT) : 60 °C
SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction.

Viscosity
Viscosity, dynamic : No data available
Viscosity, kinematic : not determined

Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing. Organic peroxide

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Stable under recommended storage conditions.
Chemical stability : Stable under recommended storage conditions.
Possibility of hazardous reactions : Vapors may form explosive mixture with air.
Conditions to avoid : Protect from contamination. Contact with incompatible substances can cause decomposition at or below SADT. Heat, flames and sparks.
Avoid confinement.

Incompatible materials: Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents

Hazardous decomposition products: Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
Harmful if swallowed or if inhaled.

Product:
Acute oral toxicity: Acute toxicity estimate: 858.13 mg/kg
   Method: Calculation method

Acute inhalation toxicity: Acute toxicity estimate: 1.61 mg/l
   Exposure time: 4 h
   Test atmosphere: dust/mist
   Method: Calculation method

Acute dermal toxicity: Acute toxicity estimate: 3,102 mg/kg
   Method: Calculation method

Ingredients:

Dimethyl phthalate:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity: (Rat): > 10.4 mg/l
   Exposure time: 6 h
   Test atmosphere: vapor
   Remarks: No mortality observed at this dose.

Acute dermal toxicity: LD50 (Rabbit): > 12,000 mg/kg

2-Butanone, peroxide:
Acute oral toxicity: Acute toxicity estimate: 500 mg/kg
   Method: Expert judgment

Acute inhalation toxicity: Acute toxicity estimate: 1.5 mg/l
   Exposure time: 4 h
   Test atmosphere: dust/mist
   Method: Expert judgment
   Assessment: The component/mixture is moderately toxic after short term inhalation.
   Remarks: Based on data from similar materials

Acute dermal toxicity: Acute toxicity estimate: 2,500 mg/kg
   Method: Expert judgment
SAFETY DATA SHEET
NOROX MCP-75 FRED

Version: 1.3  Revision Date: 11/08/2017  SDS Number: 600000000088  Print Date: 01/24/2018

Cumene hydroperoxide:
Acute oral toxicity : LD50 Oral (Rat): 382 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: 2.01 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Expert Judgment
Assessment: The component/mixture is toxic after short term inhalation.

Acute dermal toxicity : Acute toxicity estimate: 1,100 mg/kg
Method: Expert judgment

Trimethylpentanediol isobutyrate:
Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: Expert Judgment
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LCLo (Rat): > 5,30 mg/l
Exposure time: 6 h
Test atmosphere: vapor
Method: Expert Judgment
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Guinea pig): > 18,530 mg/kg
Method: Expert Judgment
Assessment: The substance or mixture has no acute dermal toxicity

Acetophenone:
Acute oral toxicity : Acute toxicity estimate: 500 mg/kg
Method: Expert Judgment
Assessment: The component/mixture is moderately toxic after single ingestion.
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Acute dermal toxicity : LD50 (Rat): 3,300 mg/kg
Method: OECD Test Guideline 402

Cumene:
Acute oral toxicity : LD50 (Rat): 2,700 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rabbit): > 3,160 mg/kg

Butanone:
Acute oral toxicity : LD50 (Rat): 2,193 mg/kg
Method: OECD Test Guideline 423
SAFETY DATA SHEET
NOROX MCP-75 FRED

Acute dermal toxicity: LD50 (Rabbit): > 5,000 mg/kg
Method: OECD Test Guideline 402

Benzenemethanol, alpha,alpha-dimethyl-:
Acute oral toxicity: LD50 (Rat): 1,300 mg/kg
Acute dermal toxicity: LD50 (Rabbit): 4,300 mg/kg

Hydrogen peroxide:
Acute oral toxicity: LD50 (Rat, male): 1,026 mg/kg
Method: OECD Test Guideline 401
Acute inhalation toxicity: LC50 (Rat): > 0.17 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The component/mixture is moderately toxic after short term inhalation.
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI
Acute dermal toxicity: LD50 (Rabbit): > 6,500 mg/kg

N-Methyl-2-pyrrolidone:
Acute oral toxicity: LD50 (Rat): 4,150 mg/kg
Method: OECD Test Guideline 401
Acute inhalation toxicity: LC50 (Rat): > 5.1 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Acute dermal toxicity: LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation:
Causes severe burns.

Product:
Remarks: Extremely corrosive and destructive to tissue.

Ingredients:

Dimethyl phthalate:
Species: Rabbit
Method: Draize Test
Result: No skin irritation

2-Butanone, peroxide:
Species: Rabbit
Result: Causes burns.
Cumene hydroperoxide:
Species: Rabbit
Result: Causes burns.

Trimethylpentanediol isobutyrate:
Species: Guinea pig
Result: Mild skin irritation

Acetophenone:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Cumene:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Butanone:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Benzenemethanol, alpha,alpha-dimethyl-:
Species: Rabbit
Result: Severe skin irritation

Hydrogen peroxide:
Result: Corrosive after 3 minutes or less of exposure

N-Methyl-2-pyrrolidone:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Irritating to skin.

Serious eye damage/eye irritation
Causes serious eye damage.

Product:
Remarks: May cause irreversible eye damage.

Ingredients:
Dimethyl phthalate:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405
2-Butanone, peroxide:
Result: Irreversible effects on the eye

Cumene hydroperoxide:
Species: Rabbit
Result: Corrosive

Trimethylpentanediol isobutyrate:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

Acetophenone:
Species: Rabbit
Result: Eye irritation
Method: No information available.
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Cumene:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

Butanone:
Species: Rabbit
Result: Eye irritation
Method: OECD Test Guideline 405

Benzenemethanol, alpha,alpha-dimethyl-:
Result: Irritating to eyes.

Hydrogen peroxide:
Result: Irreversible effects on the eye

N-Methyl-2-pyrrolidone:
Species: Rabbit
Result: Eye irritation
Method: OECD Test Guideline 405

Respiratory or skin sensitization

Skin sensitization
Not classified based on available information.

Respiratory sensitization
Not classified based on available information.
Ingredients:

Dimethyl phthalate:
Species: Mouse
Method: OECD Test Guideline 429
Result: Does not cause skin sensitization.

2-Butanone, peroxide:
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitization.

Assessment: Harmful if swallowed, Harmful if inhaled.

Cumene hydroperoxide:
Result: Does not cause skin sensitization.

Trimethylpentanediol isobutyrate:
Species: Guinea pig
Result: Does not cause skin sensitization.

Acetophenone:
Test Type: Draize Test
Routes of exposure: Skin contact
Species: Guinea pig
Result: Does not cause skin sensitization.

Cumene:
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitization.

Butanone:
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitization.

N-Methyl-2-pyrrolidone:
Species: Mouse
Method: OECD Test Guideline 429
Result: Does not cause skin sensitization.
Remarks: Based on data from similar materials

Germ cell mutagenicity
Not classified based on available information.
SAFETY DATA SHEET
NOROX MCP-75 FRED

Ingredients:

**Dimethyl phthalate:**
Genotoxicity in vitro

: Method: OECD Test Guideline 471
  Result: negative

: Method: OECD Test Guideline 473
  Result: negative

: Method: OECD Test Guideline 476
  Result: positive

Genotoxicity in vivo

: Test Type: Chromosomal aberration
  Species: Rat
  Application Route: Intraperitoneal
  Result: negative

Test Type: Micronucleus test
Species: Mouse
Application Route: Intraperitoneal injection
Result: negative

**2-Butanone, peroxide:**
Genotoxicity in vitro

: Method: OECD Test Guideline 473
  Result: negative

: Method: OECD Test Guideline 471
  Result: negative

: Method: OECD Test Guideline 476
  Result: negative

**Cumene hydroperoxide:**
Genotoxicity in vitro

: Result: positive
Remarks: In vitro tests have shown mutagenic effects.

Genotoxicity in vivo

: Test Type: Micronucleus test
  Species: Mouse
  Application Route: Skin contact
  Result: negative

**Trimethylpentanediol isobutyrate:**
Genotoxicity in vitro

: Method: OECD Test Guideline 476
  Result: negative

: Test Type: Ames test
  Result: negative

: Method: OECD Test Guideline 473
  Result: negative

acetophenone:
| Genotoxicity in vitro | Method: OECD Test Guideline 473  
|                       | Result: negative |
|                       | Method: OECD Test Guideline 476  
|                       | Result: negative |
|                       | Method: OECD Test Guideline 471  
|                       | Result: negative |
| Genotoxicity in vivo  | Species: Mouse  
|                       | Application Route: Intraperitoneal  
|                       | Method: OECD Test Guideline 474  
|                       | Result: negative |
|                         | Method: OECD Test Guideline 472  
|                         | Result: negative |
|                         | Test Type: Ames test  
|                         | Result: positive |
| Genotoxicity in vivo  | Species: Rat  
|                       | Application Route: Intraperitoneal  
|                       | Exposure time: 72 h  
|                       | Method: OECD Test Guideline 474  
|                       | Result: equivocal |
|                       | Species: Mouse  
|                       | Application Route: Inhalation (gas)  
|                       | Exposure time: 14 w  
|                       | Method: OECD Test Guideline 474  
|                       | Result: negative |
| Butanone:              | Method: OECD Test Guideline 471  
|                       | Result: negative |
|                       | Method: OECD Test Guideline 476  
|                       | Result: negative |
|                       | Method: OECD Test Guideline 473  
|                       | Result: negative |
| Genotoxicity in vivo  | Species: Mouse  
|                       | Application Route: Intraperitoneal  
|
SAFETY DATA SHEET
NOROX MCP-75 FRED

Method: OECD Test Guideline 474
Result: negative

Hydrogen peroxide:
Genotoxicity in vitro:
Test Type: Ames test
Result: negative

Genotoxicity in vivo:
Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Result: negative

Carcinogenicity
Not classified based on available information.

Ingredients:

Dimethyl phthalate:
Species: Rat
Application Route: Skin contact
Method: OECD Test Guideline 451
Result: negative
Remarks: Based on data from similar materials

2-Butanone, peroxide:
Remarks: This information is not available.

Cumene hydroperoxide:
Remarks: This information is not available.

Cumene:
Species: Rat
Application Route: inhalation (gas)
Exposure time: 2 Years
LOEC: 250
Method: OECD Test Guideline 451
Result: negative

Species: Mouse
Application Route: inhalation (gas)
Exposure time: 2 Years
LOEC: 125
Method: OECD Test Guideline 451
Result: negative

Carcinogenicity - Assessment
 : Carcinogenicity classification not possible from current data.

IARC
Group 2B: Possibly carcinogenic to humans
Cumene 98-82-8
OSHA
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP
Reasonably anticipated to be a human carcinogen

Cumene 98-82-8

Reproductive toxicity
May damage fertility or the unborn child.

Ingredients:

Dimethyl phthalate:
Effects on fertility:
Species: Rat
Application Route: oral (gavage)
Method: OECD Test Guideline 440
Result: negative

Effects on fetal development:
Species: Rat
Application Route: Ingestion
General Toxicity Maternal: NOAEL: 840 mg/kg body weight
Developmental Toxicity: NOAEL: 3,570 mg/kg body weight
Method: OECD Test Guideline 414

2-Butanone, peroxide:
Effects on fertility:
Species: Rat
Application Route: oral (gavage)
General Toxicity Parent: NOAEL: 50 mg/kg body weight
Method: OECD Test Guideline 421
Result: negative

Cumene hydroperoxide:
Effects on fertility:
Remarks: No data available

Effects on fetal development:
Remarks: No data available

Acetophenone:
Effects on fertility:
Species: Rat
Application Route: Ingestion
General Toxicity Parent: NOAEL: 225 mg/kg body weight
General Toxicity F1: NOAEL: 225 mg/kg body weight
Method: OECD Test Guideline 422
Result: negative

Species: Rat
Application Route: Ingestion
General Toxicity Parent: LOAEL: 750 mg/kg body weight
General Toxicity F1: LOAEL: 750 mg/kg body weight
Method: OECD Test Guideline 422

Effects on fetal development:
Species: Mouse
SAFETY DATA SHEET
NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/06/2017  SDS Number: 600000000088  Print Date: 01/24/2018

Application Route: Ingestion
General Toxicity Maternal: NOAEL: >= 175 mg/kg body weight
Teratogenicity: NOAEL: >= 175 mg/kg body weight
Developmental Toxicity: NOAEL: >= 175 mg/kg body weight
Method: OECD Test Guideline 414
Result: negative

Cumene:
Effects on fetal development: Species: Rabbit
Application Route: Inhalation (vapor)
General Toxicity Maternal: LOAEL: 500
Developmental Toxicity: NOAEL: 2,300
Method: OECD Test Guideline 414
Species: Rat
Application Route: inhalation (vapor)
General Toxicity Maternal: NOAEL: 100
Developmental Toxicity: NOAEL: > 1,200
Method: OECD Test Guideline 414

Butanone:
Effects on fertility: Species: Rat
Application Route: oral (drinking water)
General Toxicity Parent: NOAEL: 10,000 mg/l
General Toxicity F1: NOAEL: 10,000 mg/l
Method: OECD Test Guideline 416
Remarks: Based on data from similar materials
Species: Rat
Application Route: oral (drinking water)
General Toxicity Parent: LOAEL: 20,000 mg/l
Method: OECD Test Guideline 416
Remarks: Based on data from similar materials

Effects on fetal development: Species: Rat
Application Route: Inhalation
General Toxicity Maternal: NOAEC: ca. 1,002 mg/kg body weight
Teratogenicity: NOAEC Parent: ca. 1,002 mg/kg body weight
Method: OECD Test Guideline 414
Result: negative

N-Methyl-2-pyrrolidone:
Reproductive toxicity - Assessment: Clear evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments

STOT-single exposure
Not classified based on available information.
SAFETY DATA SHEET

NOROX MCP-75 FRED

Ingredients:

Cumene:
Assessment: May cause respiratory irritation.

Hydrogen peroxide:
Assessment: May cause respiratory irritation.

N-Methyl-2-pyrrolidone:
Assessment: May cause respiratory irritation.

STOT-repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Ingredients:

Cumene hydroperoxide:
Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Ingredients:

Dimethyl phthalate:
Species: Rat
NOAEL: 770 mg/kg
Application Route: Oral
Exposure time: 16 w
Method: OECD Test Guideline 408

2-Butanone, peroxide:
Species: Rat
NOAEL: 200 mg/kg
Application Route: oral (gavage)
Exposure time: 28 d
Method: OECD Test Guideline 407

Repeated dose toxicity - Harmful if swallowed., Harmful if inhaled.
Assessment

Cumene hydroperoxide:
Species: Rat
NOAEL: 0.031 mg/l
Application Route: inhalation (dust/mist/fume)
Exposure time: 90 d

acetophenone:
Species: Rat
NOAEL: 225 mg/kg
LOAEL: 750 mg/kg
Application Route: Ingestion
Method: OECD Test Guideline 422

Cumene:
Species: Rat
NOAEL: > 536 mg/kg
Application Route: oral (feed)

Species: Rat
NOAEL: 125 mg/kg
Application Route: inhalation (vapor)
Method: OECD Test Guideline 413

Hydrogen peroxide:
Species: Mouse
Application Route: Ingestion
Exposure time: 90 d
Symptoms: No adverse effects.

N-Methyl-2-pyrrolidone:
Species: Rat
NOAEL: 0.5 mg/l
LOAEL: 1 mg/l
Application Route: inhalation (vapor)
Exposure time: 90 d
Method: OECD Test Guideline 413

Species: Rat
NOAEL: 3,000 mg/kg
LOAEL: 7,500 mg/kg
Application Route: Ingestion
Exposure time: 90 d
Method: OECD Test Guideline 408

Species: Rat
NOAEL: 6,000 mg/kg
LOAEL: 18,000 mg/kg
Application Route: oral (feed)
Exposure time: 28 d
Method: OECD Test Guideline 407

Species: Rabbit
NOAEL: 925 mg/kg
Application Route: Skin contact
Exposure time: 20 d
Method: OECD Test Guideline 410

Aspiration toxicity
Not classified based on available information.
# SAFETY DATA SHEET

## NOROX MCP-75 FRED

<table>
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<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Print Date:</th>
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<td>1.3</td>
<td>11/06/2017</td>
<td>600000000088</td>
<td>01/24/2018</td>
</tr>
</tbody>
</table>

### Ingredients:

- **Dimethyl phthalate:**
  - No aspiration toxicity classification

- **Cumene:**
  - May be fatal if swallowed and enters airways.

### Further Information

**Product:**

**Remarks:** No data available

## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

**Ingredients:**

- **Dimethyl phthalate:**
  - Toxicity to fish:
    - **LC50** (Pimephales promelas (fathead minnow)): 39 mg/l
    - Exposure time: 96 h
  - Toxicity to daphnia and other aquatic invertebrates:
    - **LC50** (Daphnia magna (Water flea)): > 52 mg/l
    - Exposure time: 48 h
  - Toxicity to algae:
    - **EC50** (Desmodesmus subspicatus (green algae)): 260 mg/l
    - Exposure time: 72 h
  - Toxicity to fish (Chronic toxicity):
    - **NOEC** (Oncorhynchus mykiss (rainbow trout)): 11 mg/l
    - Exposure time: 102 d
    - Method: OECD Test Guideline 210
    - **LOEC** (Oncorhynchus mykiss (rainbow trout)): 24 mg/l
    - Exposure time: 102 d
    - Method: OECD Test Guideline 210
  - Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
    - **NOEC** (Daphnia magna (Water flea)): 9.6 mg/l
    - Exposure time: 21 d
    - **LOEC** (Daphnia magna (Water flea)): 23 mg/l
    - Exposure time: 21 d
  - Toxicity to microorganisms:
    - **EC50**: 4,100 mg/l
    - Exposure time: 0.5 h
    - Method: OECD Test Guideline 209
  - 2-Butanone, peroxide:
    - Toxicity to fish:
      - **LC50** (Poecilia reticulata (guppy)): 44.2 mg/l
      - Exposure time: 96 h
      - Method: OECD Test Guideline 203
SAFETY DATA SHEET
NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/06/2017  SDS Number: 600000000088  Print Date: 01/24/2018

NOEC (Poecilia reticulata (guppy)): 18 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 39 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

NOEC (Daphnia magna (Water flea)): 25.7 mg/l
Method: OECD Test Guideline 202

Toxicity to algae: EC50 (Pseudokirchneriella subcapitata (green algae)): 5.6 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 2.1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms: EC50 (Bacteria): 48 mg/l
Exposure time: 0.5 h
Method: OECD Test Guideline 209

Cumene hydroperoxide:
Toxicity to fish: LC50 (Onchorhyncus mykiss (rainbow trout)): 3.9 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 18 mg/l
Exposure time: 48 h

Toxicity to algae: EC50 (Desmodesmus subspicatus (green algae)): 1.6 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Trimethylpentanediol isobutyrate:
Toxicity to fish: NOEC (Lepomis macrochirus (Bluegill sunfish)): >= 6 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

LC50 (Pimephales promelas (fathead minnow)): > 1.55 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): >= 1.46 mg/l
Exposure time: 48 h

Toxicity to algae: EC50 (Selenastrum capricornutum (green algae)): > 7.49 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other: LOEC (Daphnia magna (Water flea)): 0.7 mg/l
aquatic invertebrates (Chronic toxicity)

Exposure time: 21 d

**Ecotoxicology Assessment**

Chronic aquatic toxicity: Harmful to aquatic life with long lasting effects.

acetophenone:

Toxicity to fish:
- LC50 (Pimephales promelas (fathead minnow)): 162 mg/l
  - Exposure time: 96 h
  - Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates:
- EC50 (Daphnia magna (Water flea)): 528 mg/l
  - Exposure time: 48 h

Toxicity to algae:
- EC50 (Pseudokirchneriella subcapitata (green algae)): 86.4 mg/l
  - Exposure time: 72 h
  - Method: OECD Test Guideline 201

  - NOEC (Pseudokirchneriella subcapitata (green algae)): 24.8 mg/l
  - Exposure time: 72 h
  - Method: OECD Test Guideline 201

Toxicity to microorganisms:
- IC50: > 1,000 mg/l
  - Exposure time: 3 h
  - Method: OECD Test Guideline 209

**Cumene:**

Toxicity to fish:
- LC50 (Oncorhynchus mykiss (rainbow trout)): 4.8 mg/l
  - Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
- EC50 (Daphnia magna (Water flea)): 2.14 mg/l
  - Exposure time: 48 h
  - Method: OECD Test Guideline 202

Toxicity to algae:
- EC50 (Desmodesmus subspicatus (green algae)): 2.01 mg/l
  - Exposure time: 72 h
  - Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC (Daphnia magna (Water flea)): 0.35 mg/l
  - Exposure time: 21 d
  - Method: OECD Test Guideline 211

Toxicity to microorganisms:
- EC50: > 2,000 mg/l
  - Exposure time: 3 h
  - Method: OECD Test Guideline 209

**Ecotoxicology Assessment**

Chronic aquatic toxicity: Toxic to aquatic life with long lasting effects.

**Butanone:**
## SAFETY DATA SHEET

**NOROX MCP-75 FRED**

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
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</tr>
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<tr>
<td>1.3</td>
<td>11/06/2017</td>
<td>6000000000088</td>
<td>01/24/2018</td>
</tr>
</tbody>
</table>

### Toxicity to fish
- **LC50** (Pimephales promelas (fathead minnow)): 2,993 mg/l
  - Exposure time: 96 h
  - Method: OECD Test Guideline 203

### Toxicity to daphnia and other aquatic invertebrates
- **EC50** (Daphnia magna (Water flea)): 308 mg/l
  - Exposure time: 48 h
  - Method: OECD Test Guideline 202

### Toxicity to algae
- **EC50** (Pseudokirchneriella subcapitata (green algae)): 2,029 mg/l
  - Exposure time: 96 h
  - Method: OECD Test Guideline 201

### Toxicity to microorganisms
- **NOEC** (Pseudomonas putida): 1,150 mg/l
  - Exposure time: 18 h
  - Method: DIN 38 412 Part 8

### Hydrogen peroxide:
- **LC50** (Pimephales promelas (fathead minnow)): 16.4 mg/l
  - Exposure time: 96 h

### Toxicity to daphnia and other aquatic invertebrates
- **LC50** (Daphnia pulex (Water flea)): 2.4 mg/l
  - Exposure time: 48 h

### Toxicity to algae
- **EC50** (Skeletonema costatum (marine diatom)): 1.38 mg/l
  - Exposure time: 72 h
- **NOEC** (Skeletonema costatum (marine diatom)): 0.63 mg/l
  - Exposure time: 72 h

### Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
- **NOEC** (Daphnia magna (Water flea)): 0.63 mg/l
  - Exposure time: 21 d

### Toxicity to microorganisms
- **EC50**: Method: OECD Test Guideline 209

### N-Methyl-2-pyrrolidone:
- **LC50** (Oncorhynchus mykiss (rainbow trout)): > 500 mg/l
  - Exposure time: 96 h

### Toxicity to daphnia and other aquatic invertebrates
- **EC50** (Daphnia magna (Water flea)): > 1,000 mg/l
  - Exposure time: 24 h
  - Method: DIN 38412
- **EC50** (Palaeomonetes vulgaris (Grass shrimp)): 1,107 mg/l
  - Exposure time: 96 h

### Toxicity to algae
- **EC50** (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 500 mg/l
  - Exposure time: 72 h
- **NOEC** (Desmodesmus subspicatus (green algae)): 125 mg/l
  - Exposure time: 72 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
NOEC (Daphnia magna (Water flea)): 12.5 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
LOEC (Daphnia magna (Water flea)): 25 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

Toxicity to microorganisms:
EC50: > 600 mg/l
Exposure time: 0.5 h
Method: ISO 8192

Persistence and degradability

Ingredients:

Dimethyl phthalate:
Biodegradability: Result: Readily biodegradable.
Method: OECD Test Guideline 301E

2-Butanone, peroxide:
Biodegradability: Result: Readily biodegradable.
Method: OECD Test Guideline 301D

Cumene hydroperoxide:
Biodegradability: Result: Not readily biodegradable.
Method: OECD Test Guideline 301B

Trimethylpentanediol isobutyrate:
Biodegradability: Result: rapidly biodegradable
Method: OECD Test Guideline 301B

Acetophenone:
Biodegradability: Result: Readily biodegradable
Method: OECD Test Guideline 301C

Cumene:
Biodegradability: Result: Readily biodegradable

Butanone:
Biodegradability: Result: Readily biodegradable
Method: OECD Test Guideline 301D

Benzenemethanol, alpha,alpha-dimethyl-:
Biodegradability: Remarks: No data available

Hydrogen peroxide:
Biodegradability: Result: Readily biodegradable
N-Methyl-2-pyrrolidone:
Biodegradability: Result: Readily biodegradable.
Method: OECD Test Guideline 301C

Bioaccumulative potential

Ingredients:

Dimethyl phthalate:
Bioaccumulation: Bioconcentration factor (BCF): 57
Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water: log Pow: 1.54

2-Butanone, peroxide:
Partition coefficient: n-octanol/water: log Pow: < 0.3 (25 °C)

Cumene hydroperoxide:
Partition coefficient: n-octanol/water: log Pow: 1.6

Trimethylpentanediol isobutyrate:
Partition coefficient: n-octanol/water: log Pow: 4.48

acetophenone:
Bioaccumulation: Bioconcentration factor (BCF): 0.48

Partition coefficient: n-octanol/water: log Pow: 1.63

Cumene:
Bioaccumulation: Bioconcentration factor (BCF): 94.69
Remarks: Calculation

Partition coefficient: n-octanol/water: log Pow: 3.55 (23 °C)

Butanone:
Partition coefficient: n-octanol/water: log Pow: 0.3 (40 °C)

Benzenemethanol, alpha,alpha-dimethyl-:
Partition coefficient: n-octanol/water: Remarks: No data available

Hydrogen peroxide:
SAFETY DATA SHEET
NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/09/2017  SDS Number: 600000000088  Print Date: 01/24/2018

Partition coefficient: n-octanol/water
: log Pow: -1.57
Remarks: Calculation

N-Methyl-2-pyrrolidone:
Partition coefficient: n-octanol/water
: log Pow: -0.46 (25 °C)

Mobility in soil
No data available

Other adverse effects

Product:
Ozone-Depletion Potential
: Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App. A + B).

Additional ecological information
: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.
Harmful to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues
: The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Dispose of wastes in an approved waste disposal facility.

Contaminated packaging
: Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.
Dispose of in accordance with local regulations.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number
: UN 3105
Proper shipping name
: ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE(S), CUMYL HYDROPEROXIDE)

Class
: 5.2
Packing group
: Not assigned by regulation
SAFETY DATA SHEET

NOROX MCP-75 FRED

Version 1.3
Revision Date: 11/06/2017
SDS Number: 600000000088
Print Date: 01/24/2018

Labels : 5.2

IATA-DGR
UN/ID No. : UN 3105
Proper shipping name : Organic peroxide type D, liquid
(Methyl ethyl ketone peroxide(s), Cumyl hydroperoxide)
Class : 5.2
Packing group : Not assigned by regulation
Labels : Organic Peroxides, Keep Away From Heat
Packing instruction (cargo aircraft) : 570
Packing instruction (passenger aircraft) : 570

IMDG-Code
UN number : UN 3105
Proper shipping name : ORGANIC PEROXIDE TYPE D, LIQUID
(METHYL ETHYL KETONE PEROXIDE(S), CUMYL HYDROPEROXIDE)
Class : 5.2
Packing group : Not assigned by regulation
Labels : 5.2
EmS Code : F-J, S-R
Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation
49 CFR
UN/ID/NA number : UN 3105
Proper shipping name : Organic peroxide type D, liquid
(Methyl Ethyl Ketone Peroxide, <=28%, Cumyl Hydroperoxide, <=22%)
Class : 5.2
Packing group : Not assigned by regulation
Labels : ORGANIC PEROXIDE
ERG Code : 145
Marine pollutant : no

SECTION 15: REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Butanone, peroxide</td>
<td>1338-23-4</td>
<td>10</td>
<td>38</td>
</tr>
</tbody>
</table>

SARA 304 Extremely Hazardous Substances Reportable Quantity

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>1000</td>
<td>*</td>
</tr>
</tbody>
</table>

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Fire Hazard
Reactivity Hazard

30 / 33
SAFETY DATA SHEET

NOROX MCP-75 FRED

<table>
<thead>
<tr>
<th>Version</th>
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<th>SDS Number:</th>
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<td>6000000000088</td>
<td>01/24/2018</td>
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Acute Health Hazard
Chronic Health Hazard

**SARA 302**

The following components are subject to reporting levels established by SARA Title III, Section 302:

- **Hydrogen peroxide** 7722-84-1 1%

**SARA 313**

The following components are subject to reporting levels established by SARA Title III, Section 313:

- **Dimethyl phthalate** 131-11-3 30.5%
- **Cumene hydroperoxide** 80-15-9 22%
- **Acetophenone** 98-86-2 2%
- **Cumene** 98-82-8 2%

**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

- **Dimethyl phthalate** 131-11-3 30.5%
- **Acetophenone** 98-86-2 2%
- **Cumene** 98-82-8 2%

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.469):

- **Cumene hydroperoxide** 80-15-9 22%
- **Acetophenone** 98-86-2 2%
- **Cumene** 98-82-8 2%
- **Butanone** 78-93-3 1%

**Clean Water Act**

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

- **Dimethyl phthalate** 131-11-3 30.5%

This product does not contain any Hazardous Substances listed under the U.S. Clean Water Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. Clean Water Act, Section 311, Table 117.3.

**California Prop. 65**

**Cumene**

WARNING! This product contains a chemical known in the State of California to cause cancer.

**N-Methyl-2-pyrrolidone** 872-50-4

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

The ingredients of this product are reported in the following inventories:

- **DSL (CA)** : All components of this product are on the Canadian DSL
- **NZIoC (NZ)** : On the inventory, or in compliance with the inventory
TSCA (US) : On TSCA Inventory

TSCA list
No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations
AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECL - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US / Z8
SAFETY DATA SHEET
POLYESTER - VARTM TYPE B GT150

Section 1. Identification

Product identifier : POLYESTER - VARTM TYPE B GT150
Product code : GT150 (COR45-BA-450)
Other means of identification : Unsaturated Polyester Resin
Product type : Liquid.

Supplier’s details : INTERPLASTIC CORPORATION
1225 Willow Lake Boulevard
St. Paul, MN  55110-5145
651.481.6860

Emergency telephone number (with hours of operation) : CHEMTREC 24-Hour Emergency Telephone 800.424.9300

Section 2. Hazard identification

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
ACUTE TOXICITY (inhalation) - Category 4
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger
Hazard statements : Flammable liquid and vapor.
Harmful if inhaled.
Causes serious eye irritation.
Causes skin irritation.
May cause respiratory irritation.
Causes damage to organs through prolonged or repeated exposure. (hearing organs)

Precautionary statements

Prevention : Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
Section 2. Hazard identification

Response:
- Get medical attention if you feel unwell. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage:
- Store containers in a safe place.

Disposal:
- Dispose of contents and container in accordance with all local, regional, national and international regulations. Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture
Other means of identification: Unsaturated Polyester Resin

CAS number/other identifiers:
- CAS number: Not applicable.
- Product code: GT150 (COR45-BA-450)

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>% (w/w)</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>41.90</td>
<td>100-42-5</td>
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</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures:

Eye contact:
- Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation:
- Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact:
- Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion:
- Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention following exposure or if feeling unwell. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Section 4. First-aid measures

Most important symptoms/effects, acute and delayed

Potential acute health effects

- **Eye contact**: Causes serious eye irritation.
- **Inhalation**: Harmful if inhaled. May cause respiratory irritation.
- **Skin contact**: Causes skin irritation.
- **Ingestion**: No known significant effects or critical hazards.

Over-exposure signs/symptoms

- **Eye contact**: Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness
- **Inhalation**: Adverse symptoms may include the following:
  - respiratory tract irritation
  - coughing
- **Skin contact**: Adverse symptoms may include the following:
  - irritation
  - redness
- **Ingestion**: No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- **Notes to physician**: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- **Specific treatments**: No specific treatment.
- **Protection of first-aiders**: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

- **Extinguishing media**
  - Suitable extinguishing media: Use dry chemical, CO₂, water spray (fog) or foam.
  - Unsuitable extinguishing media: Do not use water jet.

- **Specific hazards arising from the chemical**: Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

- **Hazardous thermal decomposition products**: Decomposition products may include the following materials:
  - carbon dioxide
  - carbon monoxide

- **Special protective actions for fire-fighters**: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

- **Special protective equipment for fire-fighters**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Do not store above the following temperature: 38°C (100.4°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store containers in a safe place. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td></td>
</tr>
</tbody>
</table>
| CA Alberta Provincial (Canada, 4/2009). | 15 min OEL: 40 ppm 15 minutes.  
15 min OEL: 170 mg/m³ 15 minutes.  
8 hrs OEL: 85 mg/m³ 8 hours.  
8 hrs OEL: 20 ppm 8 hours. |
| CA British Columbia Provincial (Canada, 5/2015). | TWA: 50 ppm 8 hours.  
STEL: 75 ppm 15 minutes. |
| CA Ontario Provincial (Canada, 7/2015). | TWA: 35 ppm 8 hours.  
STEL: 100 ppm 15 minutes. |
| CA Quebec Provincial (Canada, 1/2014). Absorbed through skin. | TWAEV: 50 ppm 8 hours.  
TWAEV: 213 mg/m³ 8 hours.  
STEV: 100 ppm 15 minutes.  
STEV: 426 mg/m³ 15 minutes. |
| CA Saskatchewan Provincial (Canada, 7/2013). | STEL: 40 ppm 15 minutes.  
TWA: 20 ppm 8 hours. |

### Appropriate engineering controls

- Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

### Environmental exposure controls

- Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

#### Hygiene measures

- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Eye/face protection

- Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

#### Skin protection

- Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Section 8. Exposure controls/personal protection

**Body protection**
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

**Other skin protection**
Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection**
Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Various</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>0.1 ppm</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Boiling point</td>
<td>145.2°C (293.4°F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>Closed cup: 31.1°C (88°F)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>&lt;1 (butyl acetate = 1)</td>
</tr>
<tr>
<td>Lower and upper explosive limits</td>
<td>Lower: 1.1%</td>
</tr>
<tr>
<td></td>
<td>Upper: 6.1%</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0.57 kPa (4.3 mm Hg) [room temperature]</td>
</tr>
<tr>
<td>Vapor density</td>
<td>3.6 [Air = 1]</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.9 to 1.3</td>
</tr>
<tr>
<td>Solubility</td>
<td>Not available.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
</tr>
<tr>
<td>VOC content (industrial use)</td>
<td>42.3 % (w/w) As shipped, including monomer.</td>
</tr>
</tbody>
</table>

Section 10. Stability and reactivity

**Reactivity**
No specific test data related to reactivity available for this product or its ingredients.

**Chemical stability**
The product is stable.

**Possibility of hazardous reactions**
Hazardous reactions or instability may occur under certain conditions of storage or use.

**Conditions to avoid**
Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas. Hazardous polymerization may occur under certain conditions of storage or use. Keep away from heat and direct sunlight. Keep away from heat and flame. Keep away from oxidizing agents.
Section 10. Stability and reactivity

**Incompatible materials**: Reactive or incompatible with the following materials:
- oxidizing materials
- acids and alkalis.
- alkali metals.
- some strong acids.

**Hazardous decomposition products**: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

**Acute toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>2770 ppm</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>11800 mg/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td></td>
<td>2650 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Irritation/Corrosion**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>Eyes - Mild irritant</td>
<td>Human</td>
<td>-</td>
<td>50 parts per million</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 Percent</td>
<td>-</td>
</tr>
</tbody>
</table>

**Sensitization**

Not available.

**Mutagenicity**

Not available.

**Carcinogenicity**

Not available.

**Reproductive toxicity**

Not available.

**Teratogenicity**

Not available.

**Specific target organ toxicity (single exposure)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

**Specific target organ toxicity (repeated exposure)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>Category 1</td>
<td>Not determined</td>
<td>hearing organs</td>
</tr>
</tbody>
</table>

**Aspiration hazard**

<table>
<thead>
<tr>
<th>Name</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
</tbody>
</table>
Section 11. Toxicological information

Information on the likely routes of exposure

Not available.

Potential acute health effects

**Eye contact**
- Causes serious eye irritation.

**Inhalation**
- Harmful if inhaled. May cause respiratory irritation.

**Skin contact**
- Causes skin irritation.

**Ingestion**
- No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact**
- Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness

**Inhalation**
- Adverse symptoms may include the following:
  - respiratory tract irritation
  - coughing

**Skin contact**
- Adverse symptoms may include the following:
  - irritation
  - redness

**Ingestion**
- No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

**Short term exposure**

**Potential immediate effects**
- Not available.

**Potential delayed effects**
- Not available.

**Long term exposure**

**Potential immediate effects**
- Not available.

**Potential delayed effects**
- Not available.

**Potential chronic health effects**
- Not available.

**General**
- Causes damage to organs through prolonged or repeated exposure.

**Carcinogenicity**
- No known significant effects or critical hazards.

**Mutagenicity**
- No known significant effects or critical hazards.

**Teratogenicity**
- No known significant effects or critical hazards.

**Developmental effects**
- No known significant effects or critical hazards.

**Fertility effects**
- No known significant effects or critical hazards.

Numerical measures of toxicity

**Acute toxicity estimates**

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>6325 mg/kg</td>
</tr>
<tr>
<td>Inhalation (gases)</td>
<td>6611.4 ppm</td>
</tr>
<tr>
<td>Inhalation (vapors)</td>
<td>28.16 mg/l</td>
</tr>
</tbody>
</table>
Section 12. Ecological information

**Toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>Acute EC50 1400 µg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 720 µg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 4700 µg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 4020 µg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 63 µg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

**Persistence and degradability**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>

**Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>0.35</td>
<td>13.49</td>
<td>low</td>
</tr>
</tbody>
</table>

**Mobility in soil**

- Soil/water partition coefficient (K<sub>oc</sub>): Not available.

**Other adverse effects**: No known significant effects or critical hazards.

Section 13. Disposal considerations

**Disposal methods**: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

<table>
<thead>
<tr>
<th></th>
<th>TDG Classification</th>
<th>DOT Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN1866</td>
<td>UN1866</td>
<td>UN1866</td>
<td>UN1866</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>RESIN SOLUTION</td>
<td>RESIN SOLUTION</td>
<td>RESIN SOLUTION</td>
<td>RESIN SOLUTION</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
Section 14. Transport information

<table>
<thead>
<tr>
<th>Packing group</th>
<th>III</th>
<th>III</th>
<th>III</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental hazards</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Additional information</td>
<td>Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3).</td>
<td>Reportable quantity 2386.8 lbs / 1083.6 kg [260.24 gal / 985.1 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Special precautions for user: Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code: Not available.

Section 15. Regulatory information

Canadian lists
- Canadian NPRI: The following components are listed: Styrene
- CEPA Toxic substances: None of the components are listed.
- Canada inventory: Not determined.

Inventory list
- Australia: All components are listed or exempted.
- China: All components are listed or exempted.
- Europe: Not determined.
- Malaysia: Not determined.
- New Zealand: All components are listed or exempted.
- Philippines: Not determined.
- Republic of Korea: Not determined.
- Taiwan: All components are listed or exempted.
- Turkey: Not determined.
- United States: All components are listed or exempted.

Section 16. Other information

History
- Date of printing: 10/31/2016
- Date of issue/Date of revision: 10/31/2016
- Date of previous issue: No previous validation
- Version: 1

Date of issue/Date of revision: 10/31/2016  Date of previous issue: No previous validation  Version: 1
Section 16. Other information

Prepared by: IP Corporation Health, Safety and Environmental
Email: For questions regarding SDS: iasafety@ip-corporation.com

Key to abbreviations:

ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations
HPR = Hazardous Products Regulations

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAMMABLE LIQUIDS - Category 3</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>ACUTE TOXICITY (inhalation) - Category 4</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SKIN IRRITATION - Category 2</td>
<td>Calculation method</td>
</tr>
<tr>
<td>EYE IRRITATION - Category 2A</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 1</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

References: Canada Hazardous Products Regulations SOR/2015-17

Indicates information that has changed from previously issued version.

Notice to reader:

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.
SAFETY DATA SHEET
FOR INDUSTRIAL USE ONLY
EPIKOTE# Resin MGS RIMR 135 hobboc 30KG

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : EPIKOTE# Resin MGS RIMR 135 hobboc 30KG
SDS Number : 16S-00300
Product type : Epoxy Resin

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product use : Epoxy Resin Systems

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier/Importer : Hexion B.V.
Seattleweg 17
3195 ND Pernis - Rotterdam
The Netherlands
Contact person : 4information@hexion.com
Telephone : General information
+31 (0)10 295 4000

1.4 Emergency telephone number
Supplier : CARECHEM24
Telephone number : +44 (0) 1235 239 670

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Skin Corr./Irrit. 2 H315
Eye Dam./Irrit. 2 H319
Skin Sens. 1 H317
Aquatic Chronic 2 H411

See Section 16 for the full text of the H statements declared above.
2.2 Label elements

Hazard pictograms:

Signal word: Warning

Hazard statements:
- Causes serious eye irritation.
- Causes skin irritation.
- May cause an allergic skin reaction.
- Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention:
- Wear protective gloves.
- Wear eye or face protection.
- Avoid release to the environment.

Response:
- IF IN EYES:
  Rinse cautiously with water for several minutes.
  Remove contact lenses, if present and easy to do. Continue rinsing.

Storage:
- Not applicable.

Disposal:
- Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients:
- bis-[4-(2,3-epoxipropoxy)phenyl]propane

Supplemental label elements:
- Not applicable.

2.3 Other hazards

Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII: Not applicable.

Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII: Not applicable.

Other hazards which do not result in classification: None known.

SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Product/ingredient name</td>
<td>Identifiers</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Version: 4.0  Date of issue/Date of revision: 03.08.2018  Date of previous issue: 21.06.2017
### bis-[4-(2,3-epoxipropoxi)phenyl]propane

<table>
<thead>
<tr>
<th>RRN</th>
<th>EC</th>
<th>CAS</th>
<th>Index</th>
<th>&gt;=</th>
<th>&lt;=</th>
<th>Skin Corr./Irrit.</th>
<th>Eye Dam./Irrit.</th>
<th>Skin Sens.</th>
<th>Aquatic Chronic</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-2119456619-26</td>
<td>216-823-5</td>
<td>1675-54-3</td>
<td>803-073-90-2</td>
<td>75</td>
<td>90</td>
<td>2, H315</td>
<td>2, H319</td>
<td>1, H317</td>
<td>2, H411</td>
</tr>
</tbody>
</table>

### 1,6-Hexanediol, reaction products with epichlorohydrin

<table>
<thead>
<tr>
<th>RRN</th>
<th>EC</th>
<th>CAS</th>
<th>Index</th>
<th>&gt;=</th>
<th>&lt;=</th>
<th>Skin Corr./Irrit.</th>
<th>Eye Dam./Irrit.</th>
<th>Skin Sens.</th>
<th>Aquatic Chronic</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-2119453471-41</td>
<td>618-939-5</td>
<td>933999-84-9</td>
<td></td>
<td>10</td>
<td>20</td>
<td>2, H315</td>
<td>2, H319</td>
<td>1, H317</td>
<td>3, H412</td>
</tr>
</tbody>
</table>

**Type**

[1] Substance classified with a health or environmental hazard  
[2] Substance with a workplace exposure limit  

See Section 16 for the full text of the H statements declared above.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

**Occupational exposure limits, if available, are listed in Section 8.**

### SECTION 4: First aid measures

**4.1 Description of first aid measures**

**Eye contact**

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

**Inhalation**

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Skin contact**

Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Ingestion**

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Protection of first aid personnel**

No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

- **Eye contact**: Causes serious eye irritation.
- **Inhalation**: No known significant effects or critical hazards.
- **Skin contact**: Causes skin irritation. May cause an allergic skin reaction.
- **Ingestion**: Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

- **Eye contact**: Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness

- **Inhalation**: No specific data.

- **Skin contact**: Adverse symptoms may include the following:
  - irritation
  - redness

- **Ingestion**: No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments: No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- **Suitable extinguishing media**: Use an extinguishing agent suitable for the surrounding fire.
- **Unsuitable extinguishing media**: None known.

5.2 Special hazards arising from the substance or mixture

- **Hazards from the substance or mixture**: In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

- **Hazardous thermal decomposition products**: Decomposition products may include the following materials:
  - carbon dioxide
  - carbon monoxide
  - halogenated compounds

5.3 Advice for firefighters

- **Special protective actions for fire-fighters**: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

- **Special protective equipment for fire-fighters**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters
(including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

**SECTION 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**6.2 Environmental precautions**: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

**6.3 Methods and material for containment and cleaning up**

Small spill: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

**6.4 Reference to other sections**: See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

**SECTION 7: Handling and storage**

**7.1 Precautions for safe handling**

Protective measures: Put on appropriate personal protective equipment (see section 8 of SDS). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not
Advice on general occupational hygiene:

- Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.
- Workers should wash hands and face before eating, drinking and smoking.
- Remove contaminated clothing and protective equipment before entering eating areas.
- See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

- Store in accordance with local regulations.
- Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10 of SDS) and food and drink.
- Keep container tightly closed and sealed until ready for use.
- Containers that have been opened must be carefully resealed and kept upright to prevent leakage.
- Do not store in unlabeled containers.
- Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

- Recommendations:
  - Not available
- Industrial sector specific solutions:
  - Not available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

- Occupational exposure limits:
  - No exposure limit value known.
- Recommended monitoring procedures:
  - If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following:
    - European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy)
    - European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents)
    - European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents)
    - Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

### DNELs/DMELs

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Type</th>
<th>Exposure</th>
<th>Value</th>
<th>Population</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxi)phe nyl]propane</td>
<td>DNEL</td>
<td>Short term</td>
<td>8.3 mg/kg bw/day</td>
<td>Workers</td>
<td>Systemic</td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxi)phe</td>
<td>DNEL</td>
<td>Short term</td>
<td>12.3 mg/m³</td>
<td>Workers</td>
<td>Systemic</td>
</tr>
</tbody>
</table>

Version: 4.0       Date of issue/Date of revision: 03.08.2018       Date of previous issue: 21.06.2017
<table>
<thead>
<tr>
<th>Substance</th>
<th>DNEL Type</th>
<th>Value (mg/kg bw/day)</th>
<th>Exposed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propane</td>
<td>Long term Dermal</td>
<td>8.3</td>
<td>Workers Systemic</td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propane</td>
<td>Long term Inhalation</td>
<td>12.3</td>
<td>Workers Systemic</td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propane</td>
<td>Short term Dermal</td>
<td>3.6</td>
<td>General Systemic</td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propane</td>
<td>Short term Inhalation</td>
<td>0.75</td>
<td>General Systemic</td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propane</td>
<td>Long term Dermal</td>
<td>3.6</td>
<td>General Systemic</td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propane</td>
<td>Long term Inhalation</td>
<td>0.75</td>
<td>General Systemic</td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propane</td>
<td>Long term Oral</td>
<td>0.75</td>
<td>General Systemic</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>Long term Inhalation</td>
<td>10.57</td>
<td>Workers Systemic</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>Long term Dermal</td>
<td>22.6</td>
<td>Workers Local</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>Long term Dermal</td>
<td>6.0</td>
<td>Workers Systemic</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>Long term Inhalation</td>
<td>0.44</td>
<td>Workers Local</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>Short term Dermal</td>
<td>1.7</td>
<td>General Systemic</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>Short term Inhalation</td>
<td>5.29</td>
<td>General Systemic</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>Short term Oral</td>
<td>1.5</td>
<td>General Systemic</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>Short term Dermal</td>
<td>13.6</td>
<td>General Local</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products</td>
<td>Long term Dermal</td>
<td>3.0</td>
<td>General Systemic</td>
</tr>
</tbody>
</table>
EPIKOTE® Resin MGS RIMR 135 hobboc 30KG

<table>
<thead>
<tr>
<th>with epichlorohydrin</th>
<th>DNEL</th>
<th>Long term</th>
<th>Value</th>
<th>Method Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>DNEL</td>
<td>Long term Inhalation</td>
<td>5.29 mg/m³</td>
<td>General Systemic</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>DNEL</td>
<td>Long term Oral</td>
<td>1.5 mg/kg bw/day</td>
<td>General Systemic</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>DNEL</td>
<td>Long term Dermal</td>
<td>13.6 µg/cm²</td>
<td>General Local</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>DNEL</td>
<td>Long term Inhalation</td>
<td>0.27 mg/m³</td>
<td>General Local</td>
</tr>
</tbody>
</table>

**DNEL/DMEL Summary**: Not available

**PNECs**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Type</th>
<th>Compartment Detail</th>
<th>Value</th>
<th>Method Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propyne</td>
<td>PNEC</td>
<td>Fresh water</td>
<td>3 µg/l</td>
<td></td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propyne</td>
<td>PNEC</td>
<td>Marine</td>
<td>0.3 µg/l</td>
<td></td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propyne</td>
<td>PNEC</td>
<td>Sewage Treatment Plant</td>
<td>10 mg/l</td>
<td></td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propyne</td>
<td>PNEC</td>
<td>Fresh water sediment</td>
<td>0.5 mg/kg dwt</td>
<td></td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propyne</td>
<td>PNEC</td>
<td>Marine water sediment</td>
<td>0.5 mg/kg dwt</td>
<td></td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propyne</td>
<td>PNEC</td>
<td>Sediment</td>
<td>0.05 mg/kg dwt</td>
<td></td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propyne</td>
<td>PNEC</td>
<td>Intermittent Releases</td>
<td>0.013 mg/l</td>
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</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>PNEC</td>
<td>Fresh water</td>
<td>0.0115 mg/l</td>
<td></td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>PNEC</td>
<td>Marine</td>
<td>1.15 µg/l</td>
<td></td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>PNEC</td>
<td>Marine water sediment</td>
<td>0.283 mg/kg dwt</td>
<td></td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>PNEC</td>
<td>Fresh water sediment</td>
<td>0.283 mg/kg dwt</td>
<td></td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>PNEC</td>
<td>Intermittent Releases</td>
<td>0.115 mg/l</td>
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</tr>
</tbody>
</table>
PNEC Summary : Not available

Derived No-Effect Levels’ (DNEL’s) and Predicted No-Effect Concentrations’ (PNEC’s)

Explanatory note:
REACH requires manufacturers and importers to establish and report ‘Derived No-Effect Levels’ (DNEL’s) for humans by inhalation, ingestion and dermal routes of exposure and ‘Predicted No-Effect Concentrations’ (PNEC’s) for environmental exposure. DNEL’s and PNEC’s are established by the registrant without an official consultation process, and are not intended to be directly used for setting workplace or general population exposure limits. They are primarily used as input values in running Quantitative Risk Assessment models (like the ECETOC-TRA model).

Due to differences in calculation methodology the DNEL will tend to be lower (sometimes significantly) than any corresponding health-based OEL for that chemical substance. Further although DNEL’s (and PNEC’s) are an indication for setting risk reduction measures, it should be recognized that these limits do not have the same regulatory application as officially endorsed governmental OEL’s.

8.2 Exposure controls

Appropriate engineering controls : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Material: 730 Camatril
Minimum break through time: 480 min

Material: 898 Butoject
Minimum break through time: 480 min
Producer: This recommendation is valid only for our Product as delivered. If this product will be mixed with other substances you...
need to contact a supplier of CE approved protective gloves (e.g. KCL GmbH, D-36124 Eichenzell, Tel. 0049 (0) 6659 87300, Fax. 0049 (0) 6659 87155, email: vertrieb@kcl.de).

Body protection
- Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection
- Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection
- Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Environmental exposure controls
- Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

General protective measures
- Chemical splash goggles or face shield. Chemical-resistant gloves. Suitable protective footwear. Light protective clothing. Eyewash bottle with clean water.

**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>characteristic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>pH</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Greater than 200 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Greater than &gt; 200 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available (not measured)</td>
</tr>
</tbody>
</table>
| Upper/lower flammability or explosive limits      | Lower: Not available (not measured)  
|                                                    | Upper: Not available (not measured) |
| Vapor pressure                                    | Not available (not measured) |
| Vapor density                                     | Not available (not measured) |
| Relative density                                  | Not available (not measured) |
| Density                                           | Estimated. 1.160 g/cm³    |
| Solubility(ies)                                   | Not available (not measured) |
| Solubility in water                               | Insoluble                 |
| Partition coefficient: n-octanol/water            | Not available (not measured) |
| Auto-ignition temperature                         | Not available (not measured) |
| Decomposition temperature                         | Not available (not measured) |
| Viscosity                                         | **Dynamic**: 800 - 1,100 mPa·s \(*\) @ 25 °C (DIN 53015) |
**SECTION 10: Stability and reactivity**

10.1 Reactivity

- Stable under normal conditions.

10.2 Chemical stability

- The product is stable.

10.3 Possibility of hazardous reactions

- Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

- No specific data.

10.5 Incompatible materials

- No specific data.

10.6 Hazardous decomposition products

- Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**SECTION 11: Toxicological information**

11.1 Information on toxicological effects

**Acute toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxpropoxy)phenyl]propane</td>
<td>LD50</td>
<td>Rat</td>
<td>11,400 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Remarks - Oral:</td>
<td>Not acutely toxic in multiple mouse and rat studies, LD50 &gt; 2000 mg/kg of body weight.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remarks - Inhalation:</td>
<td>Due to the very low vapor pressure, saturated atmosphere = 0.008 ppb, meaningful acute inhalation studies could not be conducted.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remarks - Dermal:</td>
<td>In a rat OECD no. 402 study the dermal LD50 was &gt; 2000 mg/kg. In multiple rabbit acute dermal studies the LD50 was &gt; 2000 mg/kg. One rabbit study reported an LD50 value of 23 grams/kg.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>2,000 mg/kg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2,900 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Remarks - Oral:</td>
<td>1,6-Hexanediol Diglycidylether (HDDGE) was accessed for acute oral toxicity in Sprague-Dawley rats by an O.E.C.D. 401 Testing Guideline study with GLP compliance. The acute oral median lethal dose (LD50) and 95% confidence limits for 1,6-hexanediol diglycidyl ether in Sprague-Dawley rats was 3741 (3341-4085) mg/kg body weight. This degree of oral toxicity does not require classification or labelling according to the criteria of the Commission of the European Communities (Annex VI of Council Directive 67/548/EEC). Therefore, Classification and Labelling for acute oral toxicity is not required. This degree of oral toxicity does not require classification or labelling according to the criteria of the Commission of the European Communities (Annex VI of Council Directive 67/548/EEC).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remarks - Inhalation:</td>
<td>1,6-Hexanediol Diglycidylether (HDDGE) was accessed for acute inhalation toxicity potential by an O.E.C.D. 433 Testing Guideline study conducted with GLP compliance. The animals were exposed by whole body inhalation to</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
primarily vapor phase HDDGE. The highest attainable concentration of HDDGE, 0.035 mg/l of air (3.7 ppm), induced no mortalities and was not toxic to rats after a single, 4-hour, whole-body exposure.

<table>
<thead>
<tr>
<th>LD50</th>
<th>Dermal</th>
<th>Rat</th>
<th>&gt; 2,000 mg/kg</th>
<th>-</th>
</tr>
</thead>
</table>

**Remarks - Dermal:** 1,6-Hexanediol Diglycidylether (HDDGE) was evaluated for acute dermal toxicity potential to rats in an O.E.C.D. 402 Testing Guideline study conducted with GLP compliance. No mortalities were observed in the study. The no observed effect level (NOEL) of the test material, 1,6-Hexanediol Diglycidylether, in the Sprague-Dawley strain rat was found to be greater than 2000 mg/kg bodyweight. Therefore, Classification and Labeling for acute dermal exposure is not required.

### Acute toxicity estimates

Not available

### Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxi)phenyl]propane</td>
<td>Skin - Erythema/Eschar</td>
<td>Rabbit</td>
<td>1.5 - 2</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>404 Acute Dermal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Irritation/Corrosion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Edema</td>
<td>Rabbit</td>
<td>1.0 - 1.5</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>404 Acute Dermal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Irritation/Corrosion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>eyes - - 405 Acute Eye</td>
<td>Rabbit</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irritation/Corrosion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>eyes - Redness of the conjunctivae</td>
<td>Rabbit</td>
<td></td>
<td>0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td></td>
<td>24 hrs</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin - Severe irritant</td>
<td>Rabbit</td>
<td></td>
<td>24 hrs</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>eyes - Mild irritant</td>
<td>Rabbit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>Skin - Primary dermal irritation index (PDII)</td>
<td>Rabbit</td>
<td>6.2</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>eyes - Redness of the conjunctivae</td>
<td>Rabbit</td>
<td></td>
<td>3.3</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion/Summary**

**Skin:** Not available
**eyes:** Not available
**Respiratory:** Not available

### Sensitization

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Route of exposure</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxi)phenyl]propane</td>
<td>Skin</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Remarks:** In an OECD No. 429 mouse LLNA study the estimated EC3 was a concentration of 5.7% suggesting that BADGE is a moderate skin sensitizer in this test system. In an OECD No. 406 guinea pig Maximization study BADGE induced positive dermal reaction in 100% of the test animals at a 50% concentration challenge dose. Therefore, BADGE is an "Extreme" skin sensitizer.
EPIKOTE® Resin MGS RIMR 135 hobbock 30KG

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Experiment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>-</td>
<td>; -</td>
<td>-</td>
</tr>
<tr>
<td>Remarks: 1,6-Hexanediol Diglycidylether (HDDGE) was evaluated for skin sensitizing potential in a mouse LLNA O.E.C.D. 429 Testing Guideline study with GLP compliance including test substance stability and concentration verification. HDDGE was found to be a dermal sensitizer in the mouse LLNA assay. The authors concluded that the Estimated Concentration 3 for HDDGE based on DPM data was 1.9% wt/v and judged HDDGE to have moderate dermal sensitizing potential based on the outcome of this study. The Worker Dermal DMEL/DNEL based on the results of this study was estimated to be 22.6 ug/cm2.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusion/Summary
Skin : Not available
Respiratory : Not available

Mutagenicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Experiment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxi)phenyl]propane</td>
<td>-</td>
<td>; -</td>
<td>-</td>
</tr>
<tr>
<td>Remarks: BADGE induced gene-mutation in Ames/Salmonella tester strains TA1535 and TA100 in multiple studies. Generally, mutagenic activity was greater without liver S9 metabolic activation. Induced gene-mutation in LS178Y mouse lymphoma cells. Induced gene-mutation and chromosome damage in Chinese hamster V79 cells. Induced cell transformation in Syrian hamster BHK cells based on clonal growth in soft agar. Did not induce evidence of chromosome damage in a mouse dominant lethal oral gavage study conducted up to a high dose level of 10 grams/kg and in a mouse micronucleus test conducted up to a high dose of 5000 mg/kg. Negative in a male mouse spermatocyte cytogenetic assay with treatment for 5 days by oral gavage up to a high dose of 3000 mg/kg. Did not induce an increase in the frequency of chromosome damage in a Chinese hamster bone marrow cytogenetic test by oral gavage up to a high dose of 3300 mg/kg. Failed to induce an increase of DNA strand breaks in rat liver cells following oral gavage treatment with 500 mg/kg as measured by alkaline elution.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>-</td>
<td>; -</td>
<td>-</td>
</tr>
<tr>
<td>Remarks: 1,6-Hexanediol Diglycidylether (HDDGE) was accessed for the potential to induce repairable DNA damage in an in vivo/in vitro rat hepatocyte O.E.C.D. 486 UDS Testing Guideline study with GLP compliance. HDDGE was tested up to a high oral dose of 2000 mg/kg of body weight. 1,6-Hexanediol Diglycidylether (HDDGE) did not induce evidence of repairable DNA damage in hepatocytes following oral treatment with up to 2000 mg/kg of body weight. Therefore, HDDGE is not genotoxic under the conditions of the study.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Carcinogenicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxi)phenyl]propane</td>
<td>- - - -</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:** In a rat oral gavage OECD no. 453 study there was no evidence of carcinogenicity up to the high dose level of 100 mg/kg/day. OECD Test Guideline no. 453 dermal exposure studies were conducted on male mice and female rats. No evidence of carcinogenicity was observed in male mice treated up to the high dose of 100 mg/kg/day and female rats exposed up to a high dose level of 1000 mg/kg/day.

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>- - - -</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:** In accordance with Column 2 of REACH, Annex X, the test (required in Section 8.9.1) does not need to be conducted based on the findings of the Chemical Safety Assessment. Furthermore, 1,6-Hexanediol Diglycidylether is not genotoxic in vivo and is not a Category 3 Mutagen.

### Reproductive toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Maternal toxicity</th>
<th>Fertility</th>
<th>Development toxin</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Remarks:** An O.E.C.D. 415 "Enhanced" One-Generation Reproduction Toxicity Study or O.E.C.D. 416 Two-Generation Reproduction Toxicity Study in the rat by an appropriate route is proposed by the consortium members, subject to approval of the Test Plan by E.C.H.A.

### Teratogenicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxi)phenyl]propane</td>
<td>- - -</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Remarks:** BADGE did not induce any evidence of development toxicity in rats and rabbits exposed by oral gavage or in rabbits treated by the dermal route in OECD Test Guideline no. 414 GLP studies. The oral gavage studies were conducted up to a high dose level of 180 mg/kg/day that produced maternal toxicity base on decreased body weight gain. The rabbit dermal study was conducted up to a high dose of 300 mg/kg/day that induced maternal toxicity based on reduced body weight gain.

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>Negative - Oral OECD Test Guideline 414</td>
<td>Rat - Female</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Specific target organ toxicity (single exposure)

Not available

### Specific target organ toxicity (repeated exposure)

Not available

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**Version:** 4.0  **Date of issue/Date of revision:** 03.08.2018  **Date of previous issue:** 21.06.2017
Aspiration hazard

Not available

Information on likely routes of exposure

Potential acute health effects

Eye contact
Causes serious eye irritation.

Inhalation
No known significant effects or critical hazards.

Skin contact
Causes skin irritation. May cause an allergic skin reaction.

Ingestion
Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact
Adverse symptoms may include the following: pain or irritation, watering, redness.

Inhalation
No specific data.

Skin contact
Adverse symptoms may include the following: irritation, redness.

Ingestion
No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects
Not available

Potential delayed effects
Not available

Long term exposure

Potential immediate effects
Not available

Potential delayed effects
Not available

Potential chronic health effects

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>NOAEL Oral</td>
<td>Rat</td>
<td>300 mg/kg/d Repeated dose 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents</td>
<td>90 days 7 days per week</td>
</tr>
</tbody>
</table>

Conclusion/Summary

General
Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity
No known significant effects or critical hazards.

Mutagenicity
No known significant effects or critical hazards.

Teratogenicity
No known significant effects or critical hazards.

Developmental effects
No known significant effects or critical hazards.

Fertility effects
No known significant effects or critical hazards.

SECTION 12: Ecological information
12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propane</td>
<td>Acute LC50 1.3 mg/l - 203 Fish, Acute Toxicity Test</td>
<td>Fish - Fish</td>
<td>96 h</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 2.1 mg/l - 202 Daphnia sp. Acute Immobilization Test and Reproduction Test</td>
<td>Aquatic invertebrates. Water flea</td>
<td>48 h</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 &gt; 11 mg/l -</td>
<td>Aquatic plants - Algae</td>
<td>72 h</td>
</tr>
<tr>
<td></td>
<td>Chronic No-observable-effect-concentration 0.3 mg/l semi-static test 211 Daphnia Magna Reproduction Test</td>
<td>Aquatic invertebrates. Water flea</td>
<td>21 d</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>Acute LC50 30 mg/l Fresh water 203 Fish, Acute Toxicity Test</td>
<td>Fish - Rainbow trout, donaldson trout</td>
<td>96 h</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 47 mg/l Fresh water 202 Daphnia sp. Acute Immobilization Test and Reproduction Test</td>
<td>Aquatic invertebrates. Water flea</td>
<td>48 h</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 23.1 mg/l Fresh water</td>
<td>Aquatic plants - Algae</td>
<td>2 d</td>
</tr>
<tr>
<td></td>
<td>Acute IC50 &gt; 100 mg/l Fresh water</td>
<td>Micro-organism - Soil organisms</td>
<td>28 d</td>
</tr>
</tbody>
</table>

Conclusion/Summary: Not available

12.2 Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propane</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remarks:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remarks:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusion/Summary: Not available

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
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</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxy)phenyl]propane</td>
<td>2.64 - 3.78</td>
<td>3 - 31 31.00</td>
<td>low</td>
</tr>
<tr>
<td>1,6-Hexanediol, reaction products with epichlorohydrin</td>
<td>0.822</td>
<td>3.57</td>
<td>low</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil
Soil/water partition coefficient (KOC): Not available
Mobility: Not available

12.5 Results of PBT and vPvB assessment

PBT: P: Not available
     B: Not available
     T: Not available

vPvB: vP: Not available
     vB: Not available

12.6 Other adverse effects: No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste: The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal: The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions: This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

<table>
<thead>
<tr>
<th>Regulatory information</th>
<th>14.1. UN number</th>
<th>14.2. UN proper shipping name</th>
<th>14.3. Transport hazard class(es)</th>
<th>14.4. Packing group</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR/ADN</td>
<td>3082</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXIDE DERIVATIVES)</td>
<td>9</td>
<td>III</td>
</tr>
</tbody>
</table>
EPIKOTE® Resin MGS RIMR 135 hobbocck 30KG

RID 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXIDE DERIVATIVES)

ICAO/IATA 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXIDE DERIVATIVES)

IMO/IMDG 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXIDE DERIVATIVES)

14.5. Environmental hazards
Environmentally hazardous and/or Marine Pollutant : Yes.

14.6 Special precautions for user : Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)
Annex XIV - List of substances subject to authorization
Substances of very high concern
Carcinogen: Not listed
Mutagen: Not listed
Toxic to reproduction: Not listed
PBT: Not listed
vPvB: Not listed

Other EU regulations
REACH Status: The substance(s) in this product has (have) been Registered, or are exempted from registration, according to Regulation (EC) No. 1907/2006 (REACH).

Aerosol dispensers : Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles:
EU - Prior Informed Consent. List of chemicals subject to the international PIC procedure (Annex I - Part I):
EU - Prior Informed Consent: Not listed

Version: 4.0 Date of issue/Date of revision: 03.08.2018 Date of previous issue: 21.06.2017
List of chemicals subject to the international PIC procedure (Annex I - Part 2)
EU - Prior Informed Consent.
List of chemicals subject to the international PIC procedure (Annex I - Part 3)
AOX

Seveso Directive
This product is controlled under the Seveso Directive.

Danger criteria

<table>
<thead>
<tr>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2: Hazardous to the aquatic environment - Chronic 2</td>
</tr>
</tbody>
</table>

National regulations

<table>
<thead>
<tr>
<th>Hazard class for water</th>
<th>WGK 2, Appendix No. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical instruction on air quality control</td>
<td>Number 5.2.5: 100 %</td>
</tr>
</tbody>
</table>

International regulations

<table>
<thead>
<tr>
<th>International lists</th>
<th>Australia inventory (AICS) All components are listed or exempted.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Canada inventory All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>Japan inventory All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>China inventory (IECSC) All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>Korea inventory All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>New Zealand Inventory (NZIoC) All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>Philippines inventory (PICCS) All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>United States inventory (TSCA 8b) All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>Taiwan inventory (CSNN) All components are listed or exempted.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Weapons Convention List Schedule I Chemicals</th>
<th>Not listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Weapons Convention List Schedule II Chemicals</td>
<td>Not listed</td>
</tr>
<tr>
<td>Chemical Weapons Convention List Schedule III Chemicals</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

15.2 Chemical Safety Assessment
This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Abbreviations and acronyms
ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
EPIKOTE® Resin MGS RIMR 135 hobbock 30KG

DMEL = Derived Minimal Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
PBT = Persistent, Bioaccumulative and Toxic
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Corr./Irrit. 2, H315</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Eye Dam./Irrit. 2, H319</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Skin Sens. 1, H317</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Aquatic Chronic 2, H411</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

Full text of abbreviated H statements:

<table>
<thead>
<tr>
<th>H</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H411</td>
<td>Toxic to aquatic life with long lasting effects.</td>
</tr>
<tr>
<td>H412</td>
<td>Harmful to aquatic life with long lasting effects.</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction.</td>
</tr>
</tbody>
</table>

Full text of classifications [CLP/GHS]:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Chronic 2, H411</td>
<td>AQUATIC HAZARD (LONG-TERM) - Category 2</td>
</tr>
<tr>
<td>Aquatic Chronic 3, H412</td>
<td>AQUATIC HAZARD (LONG-TERM) - Category 3</td>
</tr>
<tr>
<td>Eye Dam./Irrit. 2, H319</td>
<td>SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2</td>
</tr>
<tr>
<td>Skin Corr./Irrit. 2, H315</td>
<td>SKIN CORROSION/IRRITATION - Category 2</td>
</tr>
<tr>
<td>Skin Sens. 1, H317</td>
<td>SKIN SENSITISATION - Category 1</td>
</tr>
</tbody>
</table>

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Date of previous issue: 21.06.2017
Version: 4.0

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SAFETY DATA SHEET
FOR PROFESSIONAL and/or INDUSTRIAL USE ONLY
EPIKURE™ Curing Agent MGS RIMH 1366

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : EPIKURE™ Curing Agent MGS RIMH 1366
SDS Number : 16S-00153
Product type : Curing Agent

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product use : Epoxy Resin Systems

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier/Importer : Hexion B.V.
Seattleweg 17
3195 ND Pernis - Rotterdam
The Netherlands

Contact person : service@hexion.com
Telephone : General information
+31 (0)10 295 4000

1.4 Emergency telephone number
Supplier : CARECHEM24
Telephone number : +44 (0) 1235 239 670

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Acute Tox. 4 H302
Skin Corr./Irrit. 1B H314
Eye Dam./Irrit. 1 H318
Skin Sens. 1 H317
Repr. 2 H361fd
STOT RE 2 H373
Aquatic Chronic 3 H412
See Section 16 for the full text of the H statements declared above.

2.2 Label elements

Hazard pictograms

Signal word: Danger

Hazard statements:
- Harmful if swallowed.
- Causes severe skin burns and eye damage.
- May cause an allergic skin reaction.
- Suspected of damaging fertility. Suspected of damaging the unborn child.
- May cause damage to organs through prolonged or repeated exposure.
- Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention:
- Obtain special instructions before use.
- Wear protective gloves.
- Wear eye or face protection.
- Wear protective clothing.
- Avoid release to the environment.
- Do not breathe vapor.

Response:
- **IF INHALED:** Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.
- **IF SWALLOWED:** Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
- **IF ON SKIN (or hair):** Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER or physician.
- **IF IN EYES:** Immediately call a POISON CENTER or physician.

Storage:
- Store locked up.

Disposal:
- Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients:
- Phenol, 4,4’-(1-methylethyldiene)bis- polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane 2-piperazin-1-yethylamine
- Poly(oxypropylene) diamine
- 3-aminomethyl-3,5,5-trimethylcyclohexylamine

Supplemental label elements:
- Not applicable.

2.3 Other hazards

Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII:
- Not applicable.
Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII: Not applicable.

Other hazards which do not result in classification: None known.

### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures: Mixture

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Regulation (EC) No. 1272/2008 [CLP]</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly(oxypropylene) diamine</td>
<td>RRN : 01-2119557899-12</td>
<td>&gt;=50 - &lt; 75</td>
<td>Skin Corr. 1C, H314</td>
<td>Aquatic Chronic 3, H412</td>
</tr>
<tr>
<td>3-aminomethyl-3,5,5-trimethylcyclohexylamine</td>
<td>RRN : 01-2119514687-32</td>
<td>&gt;=35 - &lt; 50</td>
<td>H302, H312, H314, H318, H317, H412</td>
<td></td>
</tr>
<tr>
<td>2-piperazin-1-yethylamine</td>
<td>RRN : 01-2119471486-30</td>
<td>&gt;=7 - &lt; 10</td>
<td>Acute Tox. 4, H302</td>
<td>Acute Tox. 3, H311</td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>RRN : 01-2119965165-33</td>
<td>&gt;=0.1 - &lt; 1</td>
<td>H314, H317, H412</td>
<td></td>
</tr>
<tr>
<td>Poly(oxypropylene) diamine</td>
<td>RRN : 01-2119557899-12</td>
<td>&gt;=50 - &lt;= 75</td>
<td>Skin Corr. 1C, H314</td>
<td>Aquatic Chronic 3, H412</td>
</tr>
<tr>
<td>2-piperazin-1-yethylamine</td>
<td>RRN : 01-2119471486-30</td>
<td>&gt;=3 - &lt;= 8.9</td>
<td>Acute Tox. 4, H302</td>
<td>Acute Tox. 3, H311</td>
</tr>
</tbody>
</table>
EPIKURE™ Curing Agent MGS RIMH 1366

<table>
<thead>
<tr>
<th>Skin Sens.</th>
<th>Repr. 2, H361fd (Fertility, Unborn child)</th>
<th>STOT RE 1, H372 (respiratory tract)</th>
<th>Aquatic Chronic 3, H412</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, H317</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Phenol, 4,4'-(1-methylethylidene)bis-, polyamide with 5-amino-1,3,3-trimethylcyclohexanemethyl amine and (chloromethyl)oxirane | RRN : 01-2119965165-33 | EC : 500-101-4 | CAS : 38294-64-3 | > 0.0 <= 0.3 | H314 | H317 | H412 |

**Type**

1. Substance classified with a health or environmental hazard
2. Substance with a workplace exposure limit
3. Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
4. Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
5. Substance of equivalent concern

See Section 16 for the full text of the H statements declared above.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

**Eye contact**

- Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

**Inhalation**

- Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Skin contact**

- Get medical attention immediately. Call a poison center or physician.
Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first aid personnel: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact: Causes serious eye damage.
Inhalation: No known significant effects or critical hazards.
Skin contact: Causes severe burns. May cause an allergic skin reaction.
Ingestion: Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following: pain, watering, redness

Inhalation: Adverse symptoms may include the following: reduced fetal weight, increase in fetal deaths, skeletal malformations

Skin contact: Adverse symptoms may include the following: pain or irritation, redness, blistering may occur, reduced fetal weight, increase in fetal deaths, skeletal malformations

Ingestion: Adverse symptoms may include the following: stomach pains, reduced fetal weight, increase in fetal deaths, skeletal malformations
4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
- carbon dioxide
- carbon monoxide
- nitrogen oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. Avoid dispersal of spilled material
EPIKURE™ Curing Agent MGS RIMH 1366

6.3 Methods and material for containment and cleaning up

Small spill: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections: See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see section 8 of SDS). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10 of SDS) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
7.3 Specific end use(s)

**Recommendations**: Not available

**Industrial sector specific solutions**: Not available

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

**Occupational exposure limits**

No exposure limit value known.

**Recommended monitoring procedures**

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

### DNELs/DMELs

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Type</th>
<th>Exposure</th>
<th>Value</th>
<th>Population</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol, 4,4’-(1-methyleneylethydene) bis-, polymer with 5-amino-1,3,3-trimethylcyclohex anemethanamine and (chloromethyl)oxiran</td>
<td>DNEL</td>
<td>Long term Inhalation</td>
<td>0.98 mg/m³</td>
<td>Workers</td>
<td>Systemic</td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methyleneylethydene) bis-, polymer with 5-amino-1,3,3-trimethylcyclohex anemethanamine and (chloromethyl)oxiran</td>
<td>DNEL</td>
<td>Long term Dermal</td>
<td>0.14 mg/kg bw/day</td>
<td>Workers</td>
<td>Systemic</td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methyleneylethydene) bis-, polymer with 5-amino-1,3,3-trimethylcyclohex anemethanamine</td>
<td>DNEL</td>
<td>Long term Dermal</td>
<td>0.05 mg/kg bw/day</td>
<td>General</td>
<td>Systemic</td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene) bis-, polymer with 5-amino-1,3,3-trimethylcyclohex anemethanamine and (chloromethyl)oxirane</td>
<td>DNEL</td>
<td>Long term inhalation</td>
<td>0.175 mg/m³</td>
<td>General</td>
<td>Systemic</td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene) bis-, polymer with 5-amino-1,3,3-trimethylcyclohex anemethanamine and (chloromethyl)oxirane</td>
<td>DNEL</td>
<td>Long term oral</td>
<td>0.05 mg/kg bw/day</td>
<td>General</td>
<td>Systemic</td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene) bis-, polymer with 5-amino-1,3,3-trimethylcyclohex anemethanamine and (chloromethyl)oxirane</td>
<td>DNEL</td>
<td>Long term inhalation</td>
<td>0.98 mg/m³</td>
<td>Workers</td>
<td>Systemic</td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene) bis-, polymer with 5-amino-1,3,3-trimethylcyclohex anemethanamine and (chloromethyl)oxirane</td>
<td>DNEL</td>
<td>Long term dermal</td>
<td>0.14 mg/kg bw/day</td>
<td>Workers</td>
<td>Systemic</td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene) bis-, polymer with 5-amino-1,3,3-trimethylcyclohex anemethanamine and (chloromethyl)oxirane</td>
<td>DNEL</td>
<td>Long term inhalation</td>
<td>0.05 mg/kg bw/day</td>
<td>General</td>
<td>Systemic</td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene) bis-, polymer with 5-amino-1,3,3-trimethylcyclohex anemethanamine and (chloromethyl)oxirane</td>
<td>DNEL</td>
<td>Long term oral</td>
<td>0.05 mg/kg bw/day</td>
<td>General</td>
<td>Systemic</td>
</tr>
</tbody>
</table>

EPIKURE™ Curing Agent MGS RIMH 1366

5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane

**DNEL/DMEL Summary**: Not available

**PNECs**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Type</th>
<th>Compartment Detail</th>
<th>Value</th>
<th>Method Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Fresh water</td>
<td>0.0111 mg/l</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Marine</td>
<td>1.11 µg/l</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Intermittent Releases</td>
<td>0.111 mg/l</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Sewage Treatment Plant</td>
<td>10 mg/l</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Fresh water sediment</td>
<td>0.0456 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Marine water sediment</td>
<td>4.56 µg/kg dwt</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Soil</td>
<td>2.79 µg/kg dwt</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Secondary Poisoning</td>
<td>1 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Fresh water</td>
<td>0.0111 mg/l</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Marine</td>
<td>1.11 µg/l</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Intermittent Releases</td>
<td>0.111 mg/l</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Sewage Treatment Plant</td>
<td>10 mg/l</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>PNEC</td>
<td>Fresh water sediment</td>
<td>0.0456 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
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<td>Marine water sediment</td>
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<td>Soil</td>
<td>2.79 µg/kg dwt</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-</td>
<td>PNEC</td>
<td>Secondary Poisoning</td>
<td>1 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>
EPIKURE™ Curing Agent MGS RIMH 1366

PNEC Summary : Not available
Derived No-Effect Levels’ (DNEL’s) and Predicted No-Effect Concentrations’ (PNEC’s)

Explanatory note:
REACH requires manufacturers and importers to establish and report ‘Derived No-Effect Levels’ (DNEL’s) for humans by inhalation, ingestion and dermal routes of exposure and ‘Predicted No-Effect Concentrations’ (PNEC’s) for environmental exposure. DNEL’s and PNEC’s are established by the registrant without an official consultation process, and are not intended to be directly used for setting workplace or general population exposure limits. They are primarily used as input values in running Quantitative Risk Assessment models (like the ECETOC-TRA model).

Due to differences in calculation methodology the DNEL will tend to be lower (sometimes significantly) than any corresponding health-based OEL for that chemical substance. Further although DNEL’s (and PNEC’s) are an indication for setting risk reduction measures, it should be recognized that these limits do not have the same regulatory application as officially endorsed governmental OEL’s.

8.2 Exposure controls

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

General protective measures: Chemical splash goggles or face shield. Chemical-resistant gloves. Suitable protective footwear. Light protective clothing. Eyewash bottle with clean water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

**Appearance**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Blue</td>
</tr>
<tr>
<td>Odor</td>
<td>aminic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>pH</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Greater than 200 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Greater than 100 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td><strong>Lower</strong>: Not available (not measured) <strong>Upper</strong>: Not available (not measured)</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Density</td>
<td>0.97 g/cm³</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Soluble</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Viscosity</td>
<td><strong>Dynamic</strong>: 10 - 20 mPa·s @ 25 °C (DIN 53015)</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not available (not measured)</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not available (not measured)</td>
</tr>
</tbody>
</table>

9.2 Other information
No additional information.
**SECTION 10: Stability and reactivity**

10.1 Reactivity: Stable under normal conditions.

10.2 Chemical stability: The product is stable.

10.3 Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid: No specific data.

10.5 Incompatible materials: No specific data.

10.6 Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**SECTION 11: Toxicological information**

11.1 Information on toxicological effects

**Acute toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly(oxypropylene) diamine</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2,885 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>2,980 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>3-aminomethyl-3,5,5-trimethylcyclohexylamine</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>1,030 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>866 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Conclusion/Summary:** Not available

**Acute toxicity estimates**

Not available

**Irritation/Corrosion**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly(oxypropylene) diamine</td>
<td>eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>2-piperazin-1-ylethylamine</td>
<td>eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>24 hrs</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin -</td>
<td>Rabbit</td>
<td>24 hrs</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**EPIKURE™ Curing Agent MGS RIMH 1366**

<table>
<thead>
<tr>
<th>Severe irritant</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>- Severe irritant 431 In Vitro Skin Corrosion: Human Skin Model Test</td>
</tr>
<tr>
<td>Poly(oxypropylene) diamine</td>
<td>eyes - Severe irritant Rabbit</td>
</tr>
<tr>
<td>2-piperazin-1-ylethylamine</td>
<td>eyes - Moderate irritant Rabbit 24 hrs</td>
</tr>
<tr>
<td>Skin - Severe irritant Rabbit 24 hrs</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>- Severe irritant 431 In Vitro Skin Corrosion: Human Skin Model Test</td>
</tr>
</tbody>
</table>

**Conclusion/Summary**

<table>
<thead>
<tr>
<th>Skin</th>
<th>eyes</th>
<th>Respiratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>:</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

**Sensitization**

<table>
<thead>
<tr>
<th>Skin</th>
<th>Respiratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>:</td>
<td>Not available</td>
</tr>
</tbody>
</table>

**Mutagenicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Experiment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol, 4,4’-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>OECD-Guideline 471 (Genetic Toxicology: Salmonella typhimurium, Reverse Mutation Assay)</td>
<td>In vitro; Bacteria; with and without</td>
<td>Negative</td>
</tr>
<tr>
<td>473 In vitro Mammalian Chromosomal Aberration Test</td>
<td>In vitro; Mammalian-Animal; with and without</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>Mouse Lymphoma Assay (OECD Guidline 476)</td>
<td>In vitro; Mammalian-Animal; with and without</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>OECD-Guideline 471 (Genetic Toxicology: Salmonella typhimurium, Reverse Mutation Assay)</td>
<td>In vitro; Bacteria; with and without</td>
<td>Negative</td>
<td></td>
</tr>
</tbody>
</table>

473 In vitro Mammalian Chromosomal Aberration Test | In vitro; Mammalian-Animal; with and without | Negative

Mouse Lymphoma Assay (OECD Guidline 476) | In vitro; Mammalian-Animal; with and without | Negative

<table>
<thead>
<tr>
<th>Conclusion/Summary</th>
<th>Not available</th>
</tr>
</thead>
</table>

Carcinogenicity

<table>
<thead>
<tr>
<th>Conclusion/Summary</th>
<th>Not available</th>
</tr>
</thead>
</table>

Reproductive toxicity

<table>
<thead>
<tr>
<th>Conclusion/Summary</th>
<th>Not available</th>
</tr>
</thead>
</table>

Teratogenicity

<table>
<thead>
<tr>
<th>Conclusion/Summary</th>
<th>Not available</th>
</tr>
</thead>
</table>

Specific target organ toxicity (single exposure)

Not available

Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-piperazin-1-ylethylamine</td>
<td>Category 1</td>
<td></td>
<td>respiratory tract</td>
</tr>
</tbody>
</table>

Aspiration hazard

Not available

Information on likely routes of exposure

<table>
<thead>
<tr>
<th>Route of exposure</th>
<th>Not available</th>
</tr>
</thead>
</table>

Potential acute health effects

Eye contact

<table>
<thead>
<tr>
<th>Route of exposure</th>
<th>Not available</th>
</tr>
</thead>
</table>

Inhalation

<table>
<thead>
<tr>
<th>Route of exposure</th>
<th>Not available</th>
</tr>
</thead>
</table>

Skin contact

<table>
<thead>
<tr>
<th>Route of exposure</th>
<th>Not available</th>
</tr>
</thead>
</table>

Ingestion

<table>
<thead>
<tr>
<th>Route of exposure</th>
<th>Not available</th>
</tr>
</thead>
</table>

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact

<table>
<thead>
<tr>
<th>Route of exposure</th>
<th>Not available</th>
</tr>
</thead>
</table>

Inhalation

<table>
<thead>
<tr>
<th>Route of exposure</th>
<th>Not available</th>
</tr>
</thead>
</table>

Skin contact

<table>
<thead>
<tr>
<th>Route of exposure</th>
<th>Not available</th>
</tr>
</thead>
</table>
skeletal malformations

Ingestion: Adverse symptoms may include the following:
stomach pains
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects: Not available
Potential delayed effects: Not available

Long term exposure

Potential immediate effects: Not available
Potential delayed effects: Not available

Potential chronic health effects

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>NOEL Oral</td>
<td>Rat</td>
<td>30 mg/kg/d Repeated dose 407 Repeated Dose 28-day Oral Toxicity Study in Rodents</td>
<td>7 days per week</td>
</tr>
<tr>
<td>3-aminomethyl-3,5,5-trimethylcyclohexylamine</td>
<td>Acute EC50 17.4 mg/l Fresh water</td>
<td>Aquatic invertebrates. Daphnia</td>
<td></td>
<td>48 h</td>
</tr>
<tr>
<td>2-piperazin-1-ylethylamine</td>
<td>Acute LC50 2,190,000 μg/l Fresh water</td>
<td>Fish - Fish</td>
<td></td>
<td>96 h</td>
</tr>
</tbody>
</table>

Conclusion/Summary: Not available

General: May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: Suspected of damaging the unborn child.
Developmental effects: No known significant effects or critical hazards.
Fertility effects: Suspected of damaging fertility.

SECTION 12: Ecological information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-aminomethyl-3,5,5-trimethylcyclohexylamine</td>
<td>Acute EC50 17.4 mg/l Fresh water</td>
<td>Aquatic invertebrates. Daphnia</td>
<td>48 h</td>
</tr>
<tr>
<td>2-piperazin-1-ylethylamine</td>
<td>Acute LC50 2,190,000 μg/l Fresh water</td>
<td>Fish - Fish</td>
<td>96 h</td>
</tr>
</tbody>
</table>
**12.2 Persistence and degradability**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol, 4,4'-(1-methylene)bis-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine and (chloromethyl)oxirane</td>
<td>OECD- Guideline 301 F (Manometric Respirometry Test)</td>
<td>0 % - 28 d</td>
<td>32.5 mg/l</td>
<td>Fresh water</td>
</tr>
<tr>
<td></td>
<td>OECD- Guideline 301 F (Manometric Respirometry Test)</td>
<td>0 % - 28 d</td>
<td>32.5 mg/l</td>
<td>Fresh water</td>
</tr>
<tr>
<td>Conclusion/Summary                                                                     : Not available</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**12.3 Bioaccumulative potential**
<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly(oxypropylene) diamine</td>
<td>1.34</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>3-aminomethyl-3,5,5-trimethylcyclohexylamine</td>
<td>0.99</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>2-piperazin-1-ylethylamine</td>
<td>-1.48</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Poly(oxypropylene) diamine</td>
<td>1.34</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>3-aminomethyl-3,5,5-trimethylcyclohexylamine</td>
<td>0.99</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>2-piperazin-1-ylethylamine</td>
<td>-1.48</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

<table>
<thead>
<tr>
<th>Soil/water partition coefficient (KOC)</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility</td>
<td>Not available</td>
<td>Not available</td>
<td></td>
</tr>
</tbody>
</table>

12.5 Results of PBT and vPvB assessment

<table>
<thead>
<tr>
<th>PBT</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>P: Not available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B: Not available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T: Not available</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>vPvB</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>vP: Not available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vB: Not available</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste: The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal: The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions: This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and
runoff and contact with soil, waterways, drains and sewers.

### SECTION 14: Transport information

<table>
<thead>
<tr>
<th>Regulatory information</th>
<th>14.1. UN number</th>
<th>14.2. UN proper shipping name</th>
<th>14.3. Transport hazard class(es)</th>
<th>14.4. Packing group</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR/ADN</td>
<td>2735</td>
<td>POLYAMINES, LIQUID, CORROSIVE, N.O.S. (ALKYLETHERAMINE)</td>
<td>8</td>
<td>II</td>
</tr>
<tr>
<td>RID</td>
<td>2735</td>
<td>POLYAMINES, LIQUID, CORROSIVE, N.O.S. (ALKYLETHERAMINE)</td>
<td>8</td>
<td>II</td>
</tr>
<tr>
<td>ICAO/IATA</td>
<td>2735</td>
<td>POLYAMINES, LIQUID, CORROSIVE, N.O.S. (ALKYLETHERAMINE)</td>
<td>8</td>
<td>II</td>
</tr>
<tr>
<td>IMO/IMDG</td>
<td>2735</td>
<td>POLYAMINES, LIQUID, CORROSIVE, N.O.S. (ALKYLETHERAMINE)</td>
<td>8</td>
<td>II</td>
</tr>
</tbody>
</table>

#### 14.5 Environmental hazards

Environmentally hazardous and/or Marine Pollutant: No.

#### 14.6 Special precautions for user

Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

### SECTION 15: Regulatory information

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**EU Regulation (EC) No. 1907/2006 (REACH)**

- **Annex XIV - List of substances subject to authorization**
  - **Substances of very high concern**
    - **Carcinogen:** Not listed
    - **Mutagen:** Not listed
    - **Toxic to reproduction:** Not listed
    - **PBT:** Not listed
    - **vPvB:** Not listed

**Other EU regulations**

- **REACH Status**: The substance(s) in this product has (have) been Registered, or are exempted from registration, according to Regulation (EC) No. 1907/2006 (REACH).
- **Aerosol dispensers**: Not applicable.
- **Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles**: Not applicable.
Prior Informed Consent (PIC) (649/2012/EU)

None required.

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Carcinogenic effects</th>
<th>Mutagenic effects</th>
<th>Developmental effects</th>
<th>Fertility effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-piperazin-1-ylethylamine</td>
<td>-</td>
<td>-</td>
<td>Repr. 2, H361fd (Unborn child)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>Repr. 2, H361fd (Unborn child)</td>
<td>-</td>
</tr>
</tbody>
</table>

Seveso Directive
This product is not controlled under the Seveso Directive.

National regulations

International regulations

International lists:
Australia inventory (AICS) All components are listed or exempted.
Canada inventory All components are listed or exempted.
Japan inventory All components are listed or exempted.
China inventory (IECSC) All components are listed or exempted.
Korea inventory All components are listed or exempted.
New Zealand Inventory (NZIoC) All components are listed or exempted.
Philippines inventory (PICCS) All components are listed or exempted.
United States inventory (TSCA 8b) All components are listed or exempted.
Australia inventory (AICS) Not determined.
Japan inventory Not determined.
Philippines inventory (PICCS) Not determined.
Taiwan inventory (CSNN) All components are listed or exempted.
United States inventory (TSCA 8b) Not determined.

Chemical Weapons Convention
List Schedule I Chemicals: Not listed
List Schedule II Chemicals: Not listed
List Schedule III Chemicals: Not listed

15.2 Chemical Safety Assessment: This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Abbreviations and acronyms:
ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
DMEL = Derived Minimal Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
PBT = Persistent, Bioaccumulative and Toxic
vPvB = Very Persistent and Very Bioaccumulative

### Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox.  4, H302 (oral)</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Skin Corr./Irrit.  1B, H314</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Eye Dam./Irrit.  1, H318</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Skin Sens.  1, H317</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Rep.  2, H361fd (Fertility, Unborn child)</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT RE  2, H373</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Aquatic Chronic  3, H412</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

**Full text of abbreviated H statements**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>H302 (oral)</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H311 (dermal)</td>
<td>Toxic in contact with skin.</td>
</tr>
<tr>
<td>H312 (dermal)</td>
<td>Harmful in contact with skin.</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>H361fd (Fertility, Unborn child)</td>
<td>Suspected of damaging fertility.</td>
</tr>
<tr>
<td>H372 (respiratory tract)</td>
<td>Causes damage to organs through prolonged or repeated exposure: (respiratory tract)</td>
</tr>
<tr>
<td>H373</td>
<td>May cause damage to organs through prolonged or repeated exposure.</td>
</tr>
<tr>
<td>H412</td>
<td>Harmful to aquatic life with long lasting effects.</td>
</tr>
<tr>
<td>H302 (oral)</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
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<td>H412</td>
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</tr>
</tbody>
</table>
### Full text of classifications [CLP/GHS]

<table>
<thead>
<tr>
<th>Classification</th>
<th>Full Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 4, H302</td>
<td>ACUTE TOXICITY (oral) - Category 4</td>
</tr>
<tr>
<td>Acute Tox. 3, H311</td>
<td>ACUTE TOXICITY (dermal) - Category 3</td>
</tr>
<tr>
<td>Acute Tox. 4, H312</td>
<td>ACUTE TOXICITY (dermal) - Category 4</td>
</tr>
<tr>
<td>Skin Corr./Irrit. 1B, H314</td>
<td>SKIN CORROSION/IRRITATION - Category 1B</td>
</tr>
<tr>
<td>Skin Corr./Irrit. 1C, H314</td>
<td>SKIN CORROSION/IRRITATION - Category 1C</td>
</tr>
<tr>
<td>Skin Sens. 1, H317</td>
<td>SKIN SENSITISATION - Category 1</td>
</tr>
<tr>
<td>Eye Dam./Irrit. 1, H318</td>
<td>SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1</td>
</tr>
<tr>
<td>Repr. 2, H361fd (Fertility, Unborn child)</td>
<td>REPRODUCTIVE TOXICITY (Fertility, Unborn child) - Category 2</td>
</tr>
<tr>
<td>STOT RE 1, H372 (respiratory tract)</td>
<td>SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE (respiratory tract) - Category 1</td>
</tr>
<tr>
<td>STOT RE 2, H373</td>
<td>SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2</td>
</tr>
<tr>
<td>Aquatic Chronic 3, H412</td>
<td>AQUATIC HAZARD (LONG-TERM) - Category 3</td>
</tr>
<tr>
<td>Acute Tox. 4, H302</td>
<td>ACUTE TOXICITY (oral) - Category 4</td>
</tr>
<tr>
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</tr>
<tr>
<td>Aquatic Chronic 3, H412</td>
<td>AQUATIC HAZARD (LONG-TERM) - Category 3</td>
</tr>
</tbody>
</table>
Notice to reader

The information provided herein was believed by Hexion Inc. ("Hexion") to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. All products supplied by Hexion are subject to Hexion's terms and conditions of sale. HEXION MAKES NO WARRANTY, EXPRESSED OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY HEXION, except that the product shall conform to Hexion's specifications. Nothing contained herein constitutes an offer for the sale of any product.

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**KIT - SAFETY DATA SHEET**

Product identifier used on the label:

Kit Name: MA310 (400ml 1:1 Twin Cartridge)
Stock No.: 31000

Other means of identification:

Recommended use of the chemical and restrictions on use:

Chemical manufacturer address and telephone number:
Manufacturer Name: ITW Polymers Adhesives, North America
Address: 30 Endicott Street
Danvers, MA 01923

---

**Component list**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component B</td>
<td>MA300 / MA310 ACTIVATOR</td>
</tr>
<tr>
<td>Component A</td>
<td>MA310 ADHESIVE</td>
</tr>
</tbody>
</table>

Kit SDS Revision Date 08/14/2015

---

**Component B - SDS**

**SECTION 1 : IDENTIFICATION**

Product identifier used on the label:

Product Name: MA300 / MA310 ACTIVATOR

Other means of identification:

Synonyms: None.

Recommended use of the chemical and restrictions on use:

Product Use/Restriction: Not applicable.

Chemical manufacturer address and telephone number:
Manufacturer Name: ITW
Address: 30 Endicott Street
Danvers, MA 01923

Emergency phone number:
Emergency Phone Number: (800) 424-9300

CHEMTREC: For emergencies in the US, call CHEMTREC: 800-424-9300

---

**SECTION 2 : HAZARD(S) IDENTIFICATION**

Classification of the chemical in accordance with CFR 1910.1200(d)(f):

GHS Pictograms:

*Signal Word:* DANGER.

*GHS Class:*
- Flammable Liquid. Category 2.
- Skin Irritation. Category 2.
- Skin Sensitization, category 1.
- Specific Target Organ Toxicity - STOT, Single Exposure SE. Category 3.

*Hazard Statements:*
- H225 - Highly flammable liquid and vapor.
- H315 - Causes skin irritation.
- H317 - May cause an allergic skin reaction.
- H335 - May cause respiratory irritation.

*Precautionary Statements:*
- P210 - Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
- P233 - Keep container tightly closed.
- P240 - Ground/Bond container and receiving equipment.
- P241 - Use explosion-proof electrical/ventilating/lighting equipment.
- P242 - Use only non-sparking tools.
- P243 - Take precautionary measures against static discharge.
- P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 - Wash hands thoroughly after handling.
- P271 - Use only outdoors or in a well-ventilated area.
- P272 - Contaminated work clothing should not be allowed out of the workplace.
- P380 - Wear protective gloves/protective clothing/eye protection/face protection.
- P302+P361+P353 - IF ON SKIN: Wash with plenty of water.
- P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing.
Rinse skin with water/shower.
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P321 - Specific treatment (see ... on this label).
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P367 - In case of fire: Use dry chemical, carbon dioxide to extinguish small fires. Use water for large fires.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with Local, State, Federal and Provincial regulations.

Hazards not otherwise classified that have been identified during the classification process:

Route of Exposure: Eyes. Skin. Inhalation. Ingestion.

Potential Health Effects:

Eye: Can cause moderate irritation, burning sensation, tearing, redness, and swelling. Overexposure may cause lacrimation, conjunctivitis, corneal damage and permanent injury.

Skin: Can cause skin irritation; itching, redness, rashes, hives, burning, and swelling. Allergic reactions are possible. May cause skin sensitization, an allergic reaction, which becomes evident on reexposure to this material.

Inhalation: Respiratory tract irritant. High concentration may cause dizziness, headache, and anesthetic effects.

Ingestion: Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.

Chronic Health Effects: Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction.

Signs/Symptoms: Overexposure can cause headaches, dizziness, nausea, and vomiting.


Aggravation of Pre-Existing Conditions: Individuals with pre-existing skin disorders, asthma, allergies or known sensitization may be more susceptible to the effects of this product.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS#</th>
<th>Ingredient Percent</th>
<th>EC Num.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl Methacrylate Monomer</td>
<td>80-62-6</td>
<td>70 - 80 by weight</td>
<td></td>
</tr>
<tr>
<td>Proprietary ingredient(s)</td>
<td>Trade Secret</td>
<td>1 - 10 by weight</td>
<td></td>
</tr>
<tr>
<td>3,5-Diethyl-1,2-dihydro-1-phenyl-2-propylpyridine</td>
<td>34562-31-7</td>
<td>1 - 10 by weight</td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>No Data</td>
<td>1 - 10 by weight</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4 : FIRST AID MEASURES

Description of necessary measures:

Eye Contact: Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.

Skin Contact: Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

Ingestion: If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

SECTION 5 : FIRE FIGHTING MEASURES

Suitable and unsuitable extinguishing media:

Suitable Extinguishing Media: Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.

Unsuitable extinguishing media: Water may cause frothing.

Unusual Fire Hazards: Sealed containers at elevated temperatures may rupture explosively and spread fire due to polymerization.

Special protective equipment and precautions for fire-fighters:

Protective Equipment: As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.
**SECTION 6 : ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures:**

**Personal Precautions:**
Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.

**Environmental precautions:**
Avoid runoff into storm sewers, ditches, and waterways.

**Methods and materials for containment and cleaning up:**

**Spill Cleanup Measures:**
Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Collect spill with a non-sparking tool. Place into a suitable container for disposal. Clean up spills immediately observing precautions in the protective equipment section. After removal, flush spill area with soap and water to remove trace residue. Flammable, eliminate ignition sources. Vapors can form an ignitable mixture with air. Vapors can flow along surfaces to distant ignition sources and flash back.

**Reference to other sections:**

**Other Precautions:**
Pump or shovel to storage/salvage vessels. Add inhibitor to prevent polymerization.

**SECTION 7 : HANDLING and STORAGE**

**Precautions for safe handling:**

**Handling:**
Use with adequate ventilation. Avoid breathing vapor, aerosol or mist. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. Do not reuse containers without proper cleaning or reconditioning.

**Hygiene Practices:**
Wash thoroughly after handling.

**Special Handling Procedures:**
Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product. Hazardous liquid or vapor residue may remain in emptied container. Do not reuse, heat, burn, pressurize, cut, weld, braze, solder, drill, grind, expose to sparks, flame, or ignition sources of empty containers without proper commercial cleaning or reconditioning.

**Conditions for safe storage, including any incompatibilities:**

**Storage:**
Store in a cool, dry, well ventilated area away from sources of heat, combustible materials, direct sunlight, and incompatible substances. Keep container tightly closed when not in use.

**SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION**

**EXPOSURE GUIDELINES:**

**Methyl Methacrylate Monomer:**

**Guideline ACGIH:**
- TLV-STEL: 100 ppm
- TLV-TWA: 50 ppm
- Sensitizer.

**Guideline OSHA:**
- PEL-TWA: 100 ppm

**Appropriate engineering controls:**
Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.

**Individual protection measures:**

**Eye/Face Protection:**
Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.

**Skin Protection Description:**
Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.

**Respiratory Protection:**
A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

**Other Protective:**
Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.

**Notes:**
Only established PEL and TLV values for the ingredients are listed.

**SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES**

**PHYSICAL AND CHEMICAL PROPERTIES:**

**Physical State Appearance:**
Paste.
Odor: Fragrant.
Boiling Point: 213°F (100.5°C)
Melting Point: Not determined.
Specific Gravity: 0.96
Solubility: Not determined.
Vapor Density: 3.5 (air = 1)
Vapor Pressure: 28 mm Hg @68°F
Percent Volatile: Not determined.
Evaporation Rate: 3 (butyl acetate = 1)
pH: 4.5-5.5 @ 5 Percent Solution
Molecular Formula: Mixture
Molecular Weight: Mixture
Flash Point: 50°F (10°C)
Flash Point Method: Tag closed cup. (TCC)
Lower Flammable/Explosive Limit: 2.1%
Upper Flammable/Explosive Limit: 12.5%
Auto Ignition Temperature: Not determined.
VOC Content: <50 g/L mixed.

9.2. Other information:
Percent Solids by Weight Not determined.

SECTION 10 : STABILITY and REACTIVITY

Chemical Stability: Unstable.
Possibility of hazardous reactions:
Hazardous Polymerization: Polymerization may occur under certain conditions.
Conditions To Avoid:
Conditions to Avoid: Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions. Oxygen-free atmospheres or inert gas blanketing. Freezing conditions. Material can soften paint and rubber.
Incompatible Materials:
Incompatible Materials: Oxidizing agents (eg peroxides, nitrates), reducing agents, acids, bases, azo-compounds, catalytic metals (eg copper, iron), halogens. Free radical initiators. Oxygen scavengers.

SECTION 11 : TOXICOLOGICAL INFORMATION

Methyl Methacrylate Monomer:
Eye: Administration into the eye - Rabbit Standard Draize test: 150 mg [Not reported.] (RTECS)
Skin: Administration onto the skin - Rabbit LD50 - Lethal dose, 50 percent kill: >5 gm/kg [Skin and Appendages - Dermatitis, other(After systemic exposure) ] (RTECS)
Inhalation: Inhalation - Rat LC50 - Lethal concentration, 50 percent kill: 78000 mg/m3/4H [Details of toxic effects not reported other than lethal dose value] (RTECS)
Ingestion: Oral - Rat LD50 - Lethal dose, 50 percent kill: 7872 mg/kg [Behavioral - Muscle weakness Behavioral - Coma Lungs, Thorax, or Respiration - Respiratory depression] (RTECS)

SECTION 12 : ECOLOGICAL INFORMATION

Ecotoxicity:
Ecotoxicity: No ecotoxicity data was found for the product.
Environmental Fate: No environmental information found for this product.

SECTION 13 : DISPOSAL CONSIDERATIONS

Description of waste:
Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.

Waste Disposal: Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
Important Disposal Information: DANGER! Rags, steel wool and waste soaked with this product may spontaneously catch fire if improperly discarded or stored. To avoid a spontaneous combustion fire, immediately after use, place rags, steel wool or waste in a sealed, water-filled, metal container.

SECTION 14 : TRANSPORT INFORMATION

DOT Shipping Name: Refer to Bill of Lading
DOT UN Number: Refer to Bill of Lading
IATA Shipping Name: Refer to Bill of Lading
IATA UN Number: Refer to Bill of Lading
IMDG UN Number: Refer to Bill of Lading
IMDG Shipping Name: Refer to Bill of Lading

SECTION 15 : REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product:

Methyl Methacrylate Monomer:
TSCA Inventory Status: Listed
Section 313: EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
Canada DSL: Listed

3,5-Diethyl-1,2-dihydro-1-phenyl-2-propylpyridine:
TSCA Inventory Status: Listed
Canada DSL: Listed
Canadian Regulations. WHMIS Hazard Class(es): B2; D2B
All components of this product are on the Canadian Domestic Substances List.

SECTION 16 : ADDITIONAL INFORMATION

HMIS Ratings:
HMIS Health Hazard: 2*  
HMIS Fire Hazard: 3  
HMIS Reactivity: 2  
HMIS Personal Protection: X

SDS Revision Date: May 19, 2015
SDS Revision Notes: GHS Update
SDS Author: Actio Corporation
Disclaimer: The information in this Safety Data Sheet (SDS) is believed to be correct as of the date issued. ITW Polymers Adhesives, NA, MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the ITW Polymers Adhesives, NA product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a ITW Polymers Adhesives, NA product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the ITW Polymers Adhesives, NA product to determine whether it is fit for a particular purpose and suitable for user's method of use or application. ITW Polymers Adhesives, NA provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, ITW Polymers Adhesives, NA makes no representations as to its completeness or accuracy. In addition, information obtained from a database may not be as current as the information in the MSDS available directly from ITW Polymers Adhesives, NA.

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Component A - SDS

SECTION 1 : IDENTIFICATION

Product identifier used on the label: MA310 ADHESIVE
Product Name: MA310 ADHESIVE
SECTION 2 : HAZARD(S) IDENTIFICATION

Classification of the chemical in accordance with CFR 1910.1200(d)(f):

GHS Pictograms:

Signal Word: DANGER.

GHS Class:
- Flammable Liquid. Category 2.
- Eye Irritation. Category 2.
- Skin Irritation. Category 2.
- Skin Sensitization. Category 1.
- Specific Target Organ Toxicity - STOT, Single Exposure SE. Category 3.

Hazard Statements:
- H225 - Highly flammable liquid and vapor.
- H319 - Causes serious eye irritation.
- H315 - Causes skin irritation.
- H317 - May cause an allergic skin reaction.
- H335 - May cause respiratory irritation.

Precautionary Statements:
- P210 - Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
- P233 - Keep container tightly closed.
- P240 - Ground/Bond container and receiving equipment.
- P241 - Use explosion-proof electrical/ventilating/lighting equipment.
- P242 - Use only non-sparking tools.
- P243 - Take precautionary measures against static discharge.
- P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 - Wash hands thoroughly after handling.
- P271 - Use only outdoors or in a well-ventilated area.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P260 - If exposed or suspected to be exposed, get medical advice/attention.

Hazardous Ingredients:
- Route of Exposure: Eyes. Skin. Inhalation. Ingestion.
- Potential Health Effects:
  - Skin: Can cause skin irritation; itching, redness, rashes, hives, burning, and swelling. Allergic reactions are possible. May cause skin sensitization, an allergic reaction, which becomes evident on reexposure to this material.
  - Inhalation: Respiratory tract irritant. High concentration may cause dizziness, headache, and anesthetic effects.
  - Ingestion: Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.
- Chronic Health Effects: Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction.
- Signs/Symptoms: May cause lacrimation, conjunctivitis, corneal damage and permanent injury.
- Aggravation of Pre-Existing Conditions: Individuals with pre-existing skin disorders, asthma, allergies or known sensitization may be more susceptible to the effects of this product.
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures:

<table>
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<tr>
<th>Chemical Name</th>
<th>CAS#</th>
<th>Ingredient Percent</th>
<th>EC Num.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary ingredient(s)</td>
<td>Trade Secret</td>
<td>1 - 10 by weight</td>
<td></td>
</tr>
<tr>
<td>Methyl Methacrylate Monomer</td>
<td>80-62-6</td>
<td>60 - 70 by weight</td>
<td></td>
</tr>
<tr>
<td>Poly (acrylonitrile-butadiene-styrene)</td>
<td>26299-47-8</td>
<td>1 - 10 by weight</td>
<td></td>
</tr>
<tr>
<td>Dipolyglycerol adipate</td>
<td>27178-16-1</td>
<td>1 - 10 by weight</td>
<td></td>
</tr>
<tr>
<td>Maleic acid</td>
<td>110-16-7</td>
<td>1 - 10 by weight</td>
<td></td>
</tr>
<tr>
<td>Chlorosulfonated polyethylene</td>
<td>68037-39-8</td>
<td>10 - 20 by weight</td>
<td></td>
</tr>
<tr>
<td>Butylated Hydroxytoluene (BHT)</td>
<td>128-37-0</td>
<td>1 - 10 by weight</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

Description of necessary measures:

Eye Contact: Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.

Skin Contact: Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

Ingestion: If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

SECTION 5: FIRE FIGHTING MEASURES

Suitable and unsuitable extinguishing media:

Suitable Extinguishing Media: Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.

Unsuitable extinguishing media: Water may cause frothing.

Unusual Fire Hazards: Sealed containers at elevated temperatures may rupture explosively and spread fire due to polymerization.

Special protective equipment and precautions for fire-fighters:

Protective Equipment: As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.

Fire Fighting Instructions: Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water. Vapors can flow along surfaces to distant ignition sources and flash back.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Personal Precautions: Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.

Environmental precautions:

Environmental Precautions: Avoid runoff into storm sewers, ditches, and waterways.

Methods and materials for containment and cleaning up:

Spill Cleanup Measures: Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Collect spill with a non-sparking tool. Place into a suitable container for disposal. Clean up spills immediately observing precautions in the protective equipment section. After removal, flush spill area with soap and water to remove trace residue. Flammable, eliminate ignition sources. Vapors can form an ignitable mixture with air. Vapors can flow along surfaces to distant ignition sources and flash back. Ventilate area. Use proper personal protective equipment as listed in Section 8.

Reference to other sections:

Other Precautions: Pump or shovel to storage/salvage vessels. Add inhibitor to prevent polymerization.
Precautions for safe handling:

Handling: Use with adequate ventilation. Avoid breathing vapor, aerosol or mist. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. Do not reuse containers without proper cleaning or reconditioning.

Hygiene Practices: Wash thoroughly after handling.

Special Handling Procedures: Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product. Hazardous liquid or vapor residue may remain in emptied container. Do not reuse, heat, burn, pressurize, cut, weld, braze, solder, drill, grind, expose to sparks, flame, or ignition sources of empty containers without proper commercial cleaning or reconditioning.

Conditions for safe storage, including any incompatibilities:

Storage: Store in a cool, dry, well ventilated area away from sources of heat, combustible materials, direct sunlight, and incompatible substances. Keep container tightly closed when not in use.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Methyl Methacrylate Monomer:

Guideline ACGIH: TLV-STEL: 100 ppm
               TLV-TWA: 50 ppm
               Sensitizer.

Guideline OSHA: PEL-TWA: 100 ppm

Butylated Hydroxytoluene (BHT):

Guideline ACGIH: TLV-TWA: 2 mg/m3 Inhalable vapor fraction (IVF)

Appropriate engineering controls:

Engineering Controls: Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.

Individual protection measures:

Eye/Face Protection: Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.

Skin Protection Description: Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.

Respiratory Protection: Use a NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

Other Protective: Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.

Notes: Only established PEL and TLV values for the ingredients are listed.

SECTION 9: PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL AND CHEMICAL PROPERTIES:

Physical State Appearance: Paste.
Color: off-white.
Odor: Fragrant.
Boiling Point: 213°F (100.5°C)
Melting Point: -54°F (-47.7°C)
Specific Gravity: 0.93-1.05
Solubility: Not determined.
Vapor Density: 3.5 (air = 1)
Vapor Pressure: 28 mmHg @68°F
Percent Volatile: Not determined.
Evaporation Rate: 3 (butyl acetate = 1)
Molecular Formula: Mixture
Molecular Weight: Mixture
Flash Point: 50°F (10°C)
Flash Point Method: Tag closed cup. (TCC)
Lower Flammable/Explosive Limit: 2.1%
Upper Flammable/Explosive Limit: 12.5%
Auto Ignition Temperature: Not determined.
VOC Content: <50 g/L mixed.
9.2. Other information:
Percent Solids by Weight: Not determined.

SECTION 10: STABILITY and REACTIVITY

Chemical Stability: Unstable.
Possibility of hazardous reactions:
Hazardous Polymerization: Polymerization may occur under certain conditions.
Conditions To Avoid: Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions. Oxygen-free atmospheres or inert gas blanketing. Freezing conditions. Material can soften paint and rubber.
Incompatible Materials: Oxidizing agents (eg peroxides, nitrates), reducing agents, acids, bases, azo-compounds, catalytic metals (eg copper, iron), halogens. Free radical initiators. Oxygen scavengers.

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

Methyl Methacrylate Monomer:
Eye: Administration into the eye - Rabbit Standard Draize test: 150 mg [Not reported.] (RTECS)
Skin: Administration onto the skin - Rabbit LD50 - Lethal dose, 50 percent kill: >5 gm/kg [Skin and Appendages - Dermatitis, other(After systemic exposure)] (RTECS)
Inhalation: Inhalation - Rat LC50 - Lethal concentration, 50 percent kill: 78000 mg/m3/4H [Details of toxic effects not reported other than lethal dose value] (RTECS)
Ingestion: Oral - Rat LD50 - Lethal dose, 50 percent kill: 7872 mg/kg [Behavioral - Muscle weakness Behavioral - Coma Lungs, Thorax, or Respiration - Respiratory depression] (RTECS)

Diisodecyl adipate:
Ingestion: Oral - Rat LD50 - Lethal dose, 50 percent kill: 20.5 gm/kg [Details of toxic effects not reported other than lethal dose value] (RTECS)

Maleic acid:
Eye: Administration into the eye - Rabbit Standard Draize test: 1 %/2M [Severe] (RTECS)

Butylated Hydroxytoluene (BHT):
Eye: Administration into the eye - Rabbit Standard Draize test: 100 mg/24H [Moderate] (RTECS)
Skin: Administration onto the skin - Rat LD50 - Lethal dose, 50 percent kill: >2000 mg/kg [Details of toxic effects not reported other than lethal dose value] (RTECS)
Ingestion: Oral - Rat LD50 - Lethal dose, 50 percent kill: 890 mg/kg [Details of toxic effects not reported other than lethal dose value] (RTECS)

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:
Ecotoxicity: No ecotoxicity data was found for the product.
Environmental Fate: No environmental information found for this product.

SECTION 13: DISPOSAL CONSIDERATIONS

Description of waste:
Waste Disposal: Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number: D001
Important Disposal Information: DANGER! Rags, steel wool and waste soaked with this product may spontaneously catch fire if improperly discarded or stored. To avoid a spontaneous combustion fire, immediately after use, place rags, steel wool or waste in a sealed, water-filled, metal container.

SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: Refer to Bill of Lading
DOT UN Number: Refer to Bill of Lading
SECTION 15 : REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product:

**Methyl Methacrylate Monomer:**
- TSCA Inventory Status: Listed
- Section 313: EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
- Canada DSL: Listed

**Poly (acrylonitrile-butadiene-styrene):**
- TSCA Inventory Status: Listed
- Canada DSL: Listed

**Diisodecyl adipate:**
- TSCA Inventory Status: Listed
- Canada DSL: Listed

**Maleic acid:**
- TSCA Inventory Status: Listed
- Canada DSL: Listed

**Chlorosulfonated polyethylene:**
- TSCA Inventory Status: Listed
- Canada DSL: Listed

**Butylated Hydroxytoluene (BHT):**
- TSCA Inventory Status: Listed
- Canada DSL: Listed

Canadian Regulations. WHMIS Hazard Class(es): B2; D2B

All components of this product are on the Canadian Domestic Substances List.

WHMIS Pictograms:

SECTION 16 : ADDITIONAL INFORMATION

**HMIS Ratings:**
- Health Hazard: 2*
- Fire Hazard: 3
- Reactivity: 2
- Personal Protection: X

* Chronic Health Effects

SDS Revision Date: March 15, 2018
SDS Revision Notes: Formulation Correction
SDS Author: Actio Corporation

Disclaimer:

This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment.

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1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name:</th>
<th>LOCTITE® 243™ THREADLOCKER</th>
<th>IDH number:</th>
<th>1330333</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product type/use:</td>
<td>Threadlocker</td>
<td>Item number:</td>
<td>1330333</td>
</tr>
<tr>
<td>Restriction of Use:</td>
<td>None identified</td>
<td>Region:</td>
<td>Canada</td>
</tr>
</tbody>
</table>

Company address:
Henkel Canada Corporation
Meadowpine Boulevard 2515
Mississauga, Ontario L5N 6C3

Contact information:
Telephone: +1 (905) 814-6511
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
WARNING: CAUSES SKIN IRRITATION.
MAY CAUSE AN ALLERGIC SKIN REACTION.
CAUSES SERIOUS EYE IRRITATION.
SUSPECTED OF CAUSING CANCER.

<table>
<thead>
<tr>
<th>HAZARD CLASS</th>
<th>HAZARD CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKIN IRRITATION</td>
<td>2</td>
</tr>
<tr>
<td>EYE IRRITATION</td>
<td>2A</td>
</tr>
<tr>
<td>SKIN SENSITIZATION</td>
<td>1</td>
</tr>
<tr>
<td>CARCINOGENICITY</td>
<td>2</td>
</tr>
</tbody>
</table>

PICTOGRAM(S)

Precautionary Statements

Prevention:
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing vapors, mist, or spray. Wash affected area thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves, clothing, eye and face protection.

Response:
IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical attention. If skin irritation or rash occurs: Get medical attention. If skin irritation persists: Get medical attention. Take off contaminated clothing.

Storage:
Store locked up.

Disposal:
Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Classification complies with Canadian Hazardous Products Regulations (WHMIS 2015) and is consistent with the provision of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

IDH number: 1330333

Product name: LOCTITE® 243™ THREADLOCKER
3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component(s)</th>
<th>CAS Number</th>
<th>Weight %*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylene dimethacrylate</td>
<td>2082-81-7</td>
<td>10 - 30</td>
</tr>
<tr>
<td>Silane, dichlorodimethyl-, reaction products with silica</td>
<td>68611-44-9</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Ethene, homopolymer</td>
<td>9002-88-4</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Propane-1,2-diol</td>
<td>57-55-6</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>80-15-9</td>
<td>0.1 - 1</td>
</tr>
<tr>
<td>1-Acetyl-2-phenylhydrazine</td>
<td>114-83-0</td>
<td>0.1 - 1</td>
</tr>
</tbody>
</table>

* Exact percentages may vary or are trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

**Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

**Skin contact:** Remove contaminated clothing and footwear. Immediately flush skin with plenty of water (using soap, if available). Wash clothing before reuse. Get medical attention.

**Eye contact:** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Ingestion:** DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

**Symptoms:** See Section 11.

5. FIRE FIGHTING MEASURES

**Extinguishing media:** Water spray (fog), foam, dry chemical or carbon dioxide.

**Special firefighting procedures:** Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. In case of fire, keep containers cool with water spray.

**Unusual fire or explosion hazards:** Uncontrolled polymerization may occur at high temperatures resulting in explosions or rupture of storage containers.


6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

**Environmental precautions:** Do not allow product to enter sewer or waterways.

**Clean-up methods:** Remove all sources of ignition. Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment during clean-up. Refer to Section 8 "Exposure Controls / Personal Protection" prior to clean up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Store in a partly filled, closed container until disposal.
7. HANDLING AND STORAGE

Handling: Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. Refer to Section 8.

Storage: For safe storage, store at or below 38 °C (100.4 °F). Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

Shelf Life Statement: Not available.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

<table>
<thead>
<tr>
<th>Hazardous Component(s)</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>AIHA WEEL</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylene dimethacrylate</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Silane, dichlorodimethyl-, reaction products with silica</td>
<td>3 mg/m³ TWA Respirable particles. 10 mg/m³ TWA Inhalable particles.</td>
<td>0.8 mg/m³ TWA Total dust. 15 mg/m³ TWA Total dust. 5 mg/m³ TWA Respirable fraction. 15 MPPCF TWA Respirable fraction.</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Ethene, homopolymer</td>
<td>10 mg/m³ TWA Inhalable particles. 3 mg/m³ TWA Respirable particles.</td>
<td>15 MPPCF TWA Respirable fraction. 15 mg/m³ TWA Total dust. 50 MPPCF TWA Total dust. 5 mg/m³ TWA Respirable fraction. 5 mg/m³ PEL Respirable fraction. 15 mg/m³ PEL Total dust.</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Propane-1,2-diol</td>
<td>None</td>
<td>None</td>
<td>10 mg/m³ TWA Aerosol.</td>
<td>None</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>None</td>
<td>None</td>
<td>1 ppm (6 mg/m³) TWA (SKIN)</td>
<td>None</td>
</tr>
<tr>
<td>1-Acetyl-2-phenylhydrazine</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Engineering controls: Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure limit(s).

Eye/face protection: Safety goggles or safety glasses with side shields. Full face protection should be used if the potential for splashing or spraying of product exists. Safety showers and eye wash stations should be available.

Skin protection: Use chemical resistant, impermeable clothing including gloves and either an apron or body suit to prevent skin contact. Butyl rubber gloves. Neoprene gloves. Natural rubber gloves.
9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Blue
Odor: Characteristic
Odor threshold: Not applicable, Product is non-polar/aprotic.

pH: Not applicable, Product is non-polar/aprotic.
Vapor pressure: 
- < 0.1 mm hg (27 °C (80.6 °F))
- 1.7 mbar (25 °C (77°F)) < 300 mbar (50 °C (122°F))
- no method / method unknown < 0.13 mbar (20 °C (68°F))

Boiling point/range: > 150 °C (> 302°F)
Melting point/ range: Not applicable, Product is a liquid
Specific gravity: 1.09
Vapor density: > 1 20 °C
Flash point: > 100 °C (> 212°F)

Flammable/Explosive limits - lower: Not available.
Flammable/Explosive limits - upper: Not available.
Autoignition temperature: Not available.
Flammability: The product is not flammable.
Evaporation rate: Not available.
Solubility in water: Soluble
Solubility in water: Slight
Partition coefficient (n-octanol/water): Not available.
VOC content: 1.09 %; 11.88 g/l
Viscosity: Not available.
Decomposition temperature: Not available.

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions of storage and use.
Hazardous reactions: None under normal processing. Polymerization may occur at elevated temperature or in the presence of incompatible materials.
Reactivity: Not available.
Conditions to avoid: Elevated temperatures. Heat, flames, sparks and other sources of ignition. Store away from incompatible materials.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes, Ingestion
Potential Health Effects/Symptoms

**Inhalation:** Inhalation of vapors or mists of the product may be irritating to the respiratory system.

**Skin contact:** Causes skin irritation. May cause allergic skin reaction.

**Eye contact:** Causes serious eye irritation.

**Ingestion:** May cause gastrointestinal tract irritation if swallowed.

<table>
<thead>
<tr>
<th>Hazardous Component(s)</th>
<th>LD50s and LC50s</th>
<th>Immediate and Delayed Health Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylene dimethacrylate</td>
<td>None</td>
<td>Irritant, Allergen</td>
</tr>
<tr>
<td>Silane, dichlorodimethyl-, reaction products with silica</td>
<td>None</td>
<td>No Data</td>
</tr>
<tr>
<td>Ethene, homopolymer</td>
<td>None</td>
<td>No Target Organs</td>
</tr>
</tbody>
</table>
| Propane-1,2-diol | Oral LD50 (Rabbit) = 18 g/kg  
Oral LD50 (Mouse) = 23.9 g/kg  
Oral LD50 (Rat) = 30 g/kg | Irritant |
| Cumene hydroperoxide | None | Allergen, Central nervous system, Corrosive, Irritant, Mutagen |
| 1-Acetyl-2-phenylhydrazine | Oral LD50 (Mouse) = 270 mg/kg | Allergen, Blood, Kidney, Mutagen, Some evidence of carcinogenicity |

<table>
<thead>
<tr>
<th>Hazardous Component(s)</th>
<th>NTP Carcinogen</th>
<th>IARC Carcinogen</th>
<th>OSHA Carcinogen (Specifically Regulated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylene dimethacrylate</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Silane, dichlorodimethyl-, reaction products with silica</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Ethene, homopolymer</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>1-Acetyl-2-phenylhydrazine</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any packaging.

**Canada Transportation of Dangerous Goods - Ground**

- Proper shipping name: Not regulated
- Hazard class or division: None
- Identification number: None
- Packing group: None

**International Air Transportation (ICAO/IATA)**

- Proper shipping name: Not regulated
- Hazard class or division: None
- Identification number: None
- Packing group: None

**Water Transportation (IMO/IMDG)**

IDH number: 1330333  
Product name: LOCTITE® 243™ THREADLOCKER
15. REGULATORY INFORMATION

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed as active or are exempt from listing on the Toxic Substances Control Act (TSCA) inventory.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: 3,8,9,11

Prepared by: Product Safety and Regulatory Affairs

Issue date: 02/05/2024

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SAFETY DATA SHEET
Revision Date 17/May/2019

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier
Product Name POLYLITE® 413-573(US)

Other means of identification
Product Code(s): 194739; 194742; 195014
Material Code: 413-573(US)
Chemical Family Unsaturated Polyester Resin

Recommended use of the chemical and restrictions on use
Recommended Use Windmill Blades
Uses advised against No information available

Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Polynt Composites USA, Inc.
99 East Cottage Avenue
Carpentersville IL 60110

In Canada
Polynt Composites Canada Inc
29 Regan Road
Brampton, Ontario
L7A 1B2

Emergency Telephone (CareChem24) +44(0)1235 239670 Chemtrec: 1-800-424-9300 (in U.S. & Canada)
+1-703-741-5970 (international)

E-mail address MSDS@polynt.com

2. HAZARDS IDENTIFICATION

Classification
OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 2A
Carcinogenicity Category 2
Specific target organ toxicity (single exposure) Category 3
Specific target organ toxicity (repeated exposure) Category 1
Flammable liquids Category 3

Label elements
Emergency Overview

Danger

Hazard statements
Causes skin irritation
Causes serious eye irritation
Suspected of causing cancer
May cause respiratory irritation
Causes damage to hearing through prolonged or repeated exposure if inhaled
Flammable liquid and vapor
Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Wash face, hands and any exposed skin thoroughly after handling
Do not breathe dust/fume/gas/mist/vapors/spray
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ ventilating/ lighting/ equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
Specific treatment (see .? on this label)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
IF eye irritation persists: Get medical advice/attention
IF skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
Wash contaminated clothing before reuse
IF INHALED: Remove person to fresh air and keep comfortable for breathing
In case of fire: Use CO2, dry chemical, or foam to extinguish

Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal
Dispose of contents/container to industrial incineration plant
Dispose of in accordance with federal, state and local regulations

Hazards not otherwise classified (HNOC)
Not applicable

Other Information
May be harmful in contact with skin
Harmful to aquatic life with long lasting effects
Toxic to aquatic life

Unknown aquatic toxicity

54.60399 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>45</td>
<td></td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

Description of first aid measures

Eye Contact
Immediately flush eyes for at least 15 minutes. Get medical attention.

Skin Contact
Wash off with warm water and soap. Remove contaminated clothing and shoes. If skin irritation persists, call a physician. Wash contaminated clothing before reuse.

Inhalation
Remove person to fresh air. If signs/symptoms continue, get medical attention. Keep patient warm and at rest. If not breathing, give artificial respiration. If breathing is labored, administer oxygen. Get medical attention immediately.

Ingestion
Do NOT induce vomiting. Aspiration hazard. This material may enter the lungs during vomiting. Immediately give the victim one or two glasses of water or milk to drink. Never give anything by mouth to an unconscious person. GET IMMEDIATE MEDICAL ATTENTION.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects
No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Carbon dioxide (CO2), Foam, Dry chemical, Water spray

Specific hazards arising from the chemical

Hazardous combustion products
Combustion may produce carbon monoxide, carbon dioxide and irritating or toxic vapors and gases

Explosion data
Flammable. Vapors may form explosive mixtures with air. Flash back possible over considerable distance. This material may polymerize (react) when its container is exposed to heat (as during a fire). This polymerization increases pressure inside a closed container and may result in the violent rupture of the container. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death.

Protective Equipment and Precautions for Firefighters
Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all protective equipment after use. Evacuate all persons from the fire area to a safe location. Move non-burning material, as feasible, to a safe location as soon as possible. Fire fighters should be protected from potential explosion hazard while extinguishing the blaze. DO NOT extinguish a fire resulting from the flow of this flammable liquid until the flow of liquid is effectively shut off. This precaution will help prevent the accumulation of an explosive vapor-air mixture after the initial fire is extinguished. Use water spray to cool fire-exposed containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions
Remove all sources of ignition. Evacuate personnel to safe areas. Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Soak up with inert absorbent material and dispose of as hazardous waste. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

Methods for Containment

Prevent spilled material from 1) contaminating soil, 2) entering sanitary sewers, storm sewers, and drainage systems, and 3) entering bodies of water or ditches that lead to waterways. Prevent spreading over a wide area (e.g. by containment or oil barriers).

Methods for Clean-up

Soak up with inert absorbent material. Remove from surface water (e.g. by skimming or siphoning). Dispose of contaminated material as waste according to item 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling

Do not breathe vapor or mist. Avoid contact with skin, eyes or clothing. Wash hands before breaks and immediately after handling the product. Take off contaminated clothing and wash before reuse. Ensure adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion-proof equipment. Consult your supplier of promoters and catalysts for additional instructions on proper mixing and usage. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed.

Conditions for safe storage, including any incompatibilities

Storage

Keep away from heat and sources of ignition. No smoking. Protect from direct sunlight. Keep containers tightly closed in a cool, well-ventilated place. To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 77°F (25°C).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits

Styrene (CAS #: 100-42-5)

ACGIH TLV

20 ppm TWA

40 ppm STEL

OSHA PEL

A4 Not Classifiable as a Human Carcinogen

100 ppm TWA

200 ppm Ceiling

Industry PEL

While the federal workplace exposure limit for styrene is 100 ppm, OSHA accepted the styrene industry's proposal to voluntarily meet a PEL of 50 ppm on an 8 hour TWA and a Short Term Exposure Limit (STEL) of 100 ppm, 15 minute exposure.

Canada - Alberta OELs

40 ppm STEL

170 mg/m³ STEL

20 ppm TWA

85 mg/m³ TWA

Canada - Ontario OELs

35 ppm TWA

100 ppm STEL

Canada - British Columbia OELs

50 ppm TWA

75 ppm STEL

NIOSH IDLH

700 ppm
Mexico OEL

<table>
<thead>
<tr>
<th>Compound</th>
<th>Mexico OEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40 ppm STEL</td>
</tr>
<tr>
<td></td>
<td>20 ppm TWA</td>
</tr>
<tr>
<td></td>
<td>(skin)</td>
</tr>
</tbody>
</table>

**Legend**

TLV® (Threshold Limit Value)
TWA (time-weighted average)
STEL - Short Term Exposure Limit
IDLH - Immediately Dangerous to Life or Health
ACGIH (American Conference of Governmental Industrial Hygienists)
OSHA - Occupational Safety and Health Administration
NIOSH - National Institute for Occupational Safety and Health
OEL - Occupational Exposure Limit
PEL - Permissible Exposure Limit

**Appropriate engineering controls**

**Engineering Controls**

Use general ventilation to maintain airborne concentrations to levels that are below regulatory and recommended occupational exposure limits. Local ventilation may be required during certain operations. Use explosion-proof electrical equipment.

**Individual protection measures, such as personal protective equipment**

**Eye/face Protection**

Safety glasses with side-shields. If splashes are likely to occur:. Tight sealing safety goggles. Ensure that eyewash stations and safety showers are close to the workstation location.

**Skin Protection**

Wear protective nitrile rubber or Viton™ gloves. Gloves made of nitrile rubber or polyvinyl chloride (PVC) may be used for splash protection and brief or intermittent contact with styrenated polyester resin. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Impervious clothing. Rubber or plastic boots.

**Respiratory Protection**

None required if hazards have been assessed and airborne concentrations are maintained below the exposure limits listed in Section 8. Wear an approved air-purifying respirator with organic vapor cartridges and particulate filters where airborne concentrations may exceed exposure limits in Section 8 and/or there is exposure to dust or mists due to sanding, grinding, cutting, or spraying. Use an approved positive-pressure air-supplied respirator with emergency escape provisions if there is any potential for an uncontrolled release, airborne concentrations are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

**General Hygiene Considerations**

Handle in accordance with good industrial hygiene and safety practice.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Amber - Clear</td>
</tr>
<tr>
<td>Odor</td>
<td>Pungent</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>0.2 ppm (Styrene)</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash point</td>
<td>32 °C / 89 °F</td>
</tr>
<tr>
<td>Method</td>
<td>Seta closed cup</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>490°C / 914°F (Styrene)</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>146°C / 295°F (Styrene)</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>1.1% (Styrene)</td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>6.1% (Styrene)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.04 - 1.08 @ 25°C</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>Insoluble in H₂O</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>&lt; 1 (BuAc = 1)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>5 mmHg @ 20°C (Styrene)</td>
</tr>
</tbody>
</table>
6.7 hPa (Styrene)
3.6 (Air = 1) (Styrene)
(Air = 1.0)

Explosive properties
No information available

Oxidizing Properties
No information available

Percent Volatile
43 - 47 % by weight

VOC Content (%)
487 g/l (calculated) product as supplied

Dynamic viscosity
145 - 180 cps @ 23°C

Partition coefficient
No information available

Decomposition temperature
No information available

10. STABILITY AND REACTIVITY

Reactivity
No dangerous reaction known under conditions of normal use.

Chemical Stability
Stable under normal conditions. Stable under recommended storage conditions.

Possibility of Hazardous Reactions
Polymerization can occur. Hazardous polymerization will occur if contaminated with peroxides, metal salts and polymerization catalysts. Product will undergo hazardous polymerization at temperatures above 150 F (65 C).

Conditions to Avoid
Heat, flames and sparks. Contamination by those materials referred to under Incompatible materials.

Incompatible materials

Hazardous decomposition products
Hydrocarbons. Carbon monoxide. Carbon dioxide (CO2). Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Primary Routes of Entry
Eye contact, Ingestion, Inhalation, Skin Contact, Skin absorption

Acute toxicity
Styrene
Oral LD50 = 5000 mg/kg (Rat)
Inhalation LC50 = 11.8 mg/l (4 H) (Rat)

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Eyes
Irritating to eyes.

Skin
Harmful by skin absorption. Contact causes skin irritation. Prolonged skin contact may defat the skin and produce dermatitis.

Inhalation
Harmful by inhalation. May cause irritation of respiratory tract. Inhalation of high vapor concentrations can cause central nervous system depression and narcosis.

Ingestion
Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and
diarrhea. Aspiration hazard if swallowed - can enter lungs and cause damage. Ingestion is not an anticipated route of exposure for this material in industrial use.

Sensitization
Not sensitizing.

Repeated dose toxicity
In humans, styrene may cause a transient decrease in color discrimination and effects on hearing. Repeated or prolonged exposure may cause skin irritation and dermatitis, due to defatting properties of the product. May cause damage to the kidneys, liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled.

Mutagenic effects
Styrene has given mixed positive and negative results in a number of mutagenicity tests. Styrene was not mutagenic without metabolic activation but gave negative and positive mutagenic results with metabolic activation.

Carcinogenicity
Styrene

<table>
<thead>
<tr>
<th>Source</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>A4 - Not Classifiable as a Human Carcinogen</td>
</tr>
<tr>
<td>IARC</td>
<td>Group 2A - Probably Carcinogenic to Humans</td>
</tr>
<tr>
<td>NTP</td>
<td>Reasonably anticipated to be human carcinogen</td>
</tr>
</tbody>
</table>

Legend
IARC - International Agency for Research on Cancer
NTP - National Toxicology Program

Reproductive Toxicity
No information available.

Neurological effects
No information available.

STOT - single exposure
No information available.

STOT - repeated exposure
No information available.

Target organ effects
Liver, Kidney, Central nervous system (CNS), Respiratory system.

Aspiration hazard
No information available.

The following values are calculated based on chapter 3.1 of the GHS document.

<table>
<thead>
<tr>
<th>Exposure Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEmix (oral)</td>
<td>11116 mg/kg</td>
</tr>
<tr>
<td>ATEmix (dermal)</td>
<td>4449 mg/kg</td>
</tr>
<tr>
<td>ATEmix (inhalation-vapor)</td>
<td>26.2 mg/L</td>
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12. ECOLOGICAL INFORMATION

Ecotoxicity
Styrene

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Partition coefficient</td>
<td>2.95</td>
</tr>
<tr>
<td>Bioconcentration factor (BCF)</td>
<td>13.5 fish</td>
</tr>
<tr>
<td>Algae/aquatic plants</td>
<td>EC50 = 1.4 mg/L (Pseudokirchneriella subcapitata) (72h) EC50 0.46 - 4.3 mg/L (Pseudokirchneriella subcapitata) (72h)</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50 3.24 - 4.99 mg/L (Pimephales promelas) (96 h) flow-through</td>
</tr>
<tr>
<td></td>
<td>LC50 19.03 - 33.53 mg/L (Lepomis macrochirus) (96 h) static</td>
</tr>
<tr>
<td></td>
<td>LC50 6.75 - 14.5 mg/L (Pimephales promelas) (96 h) static</td>
</tr>
<tr>
<td></td>
<td>LC50 58.75 - 95.32 mg/L (Poecilia reticulata) (96 h) static</td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50: 3.3 - 7.4 mg/L (48h, Daphnia magna)</td>
</tr>
</tbody>
</table>

Unknown aquatic toxicity
54.60399 % of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Persistence and degradability
No information available.

Bioaccumulation
No information available.

**Other adverse effects**
No information available.

### 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Disposal Considerations**
Hazardous waste. Can be incinerated, when in compliance with local regulations.

**Contaminated packaging**
Empty containers should be taken for local recycling, recovery or waste disposal.

**US EPA Waste Number**
D001 (IGNITABLE): When discarded in its purchased form, this material would be regulated under 40 CFR 261.21 as EPA Hazardous Waste Number D001 based on the characteristic of ignitability.

### 14. TRANSPORT INFORMATION

**DOT**

<table>
<thead>
<tr>
<th>UN/ID no.</th>
<th>UN1866</th>
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</thead>
<tbody>
<tr>
<td>Proper shipping name</td>
<td>RESIN SOLUTION</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>3</td>
</tr>
<tr>
<td>Packing Group</td>
<td>III</td>
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<tr>
<td>NAERG:</td>
<td>127</td>
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**TDG**

<table>
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<tbody>
<tr>
<td>Proper shipping name</td>
<td>RESIN SOLUTION</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>CLASS 3</td>
</tr>
<tr>
<td>Packing Group</td>
<td>PGIII</td>
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<td>NAERG:</td>
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**MEX**

<table>
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<tbody>
<tr>
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<td>RESIN SOLUTION</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>3</td>
</tr>
<tr>
<td>Packing Group</td>
<td>III</td>
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<tr>
<td>NAERG:</td>
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**IATA**

<table>
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<th>UN Number</th>
<th>UN1866</th>
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</thead>
<tbody>
<tr>
<td>Proper shipping name</td>
<td>RESIN SOLUTION</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>3</td>
</tr>
<tr>
<td>Packing Group</td>
<td>III</td>
</tr>
<tr>
<td>Packing Instructions</td>
<td>355; 366</td>
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<tr>
<td>NAERG:</td>
<td>127</td>
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</table>

**IMDG**

<table>
<thead>
<tr>
<th>UN Number</th>
<th>UN1866</th>
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<tbody>
<tr>
<td>Proper shipping name</td>
<td>RESIN SOLUTION</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>CLASS 3</td>
</tr>
<tr>
<td>Packing Group</td>
<td>PG III</td>
</tr>
<tr>
<td>EmS-No.</td>
<td>F-E, S-E</td>
</tr>
<tr>
<td>NAERG:</td>
<td>127</td>
</tr>
</tbody>
</table>

### 15. REGULATORY INFORMATION

**International Inventories**
TSCA Inventory Status: All components of this material are listed on the US Toxic Substances Control Act (TSCA) inventory.

Canadian Inventory Status: All components of this material are listed on the Canadian Domestic Substances List (DSL)

Australian Inventory Status: This product contains only chemicals which are currently listed on the Australian Inventory of Chemical Substances

Korean Inventory Status: This product contains only chemicals which are currently listed on the Korean Chemical Substances List

Philippine Inventory: This product contains one or more chemicals currently not on the Philippine Inventory of Chemicals and Chemical Substances

Japan ENCS: This product contains one or more chemicals currently not on the Japanese Inventory of Existing and New Chemical Substances

Chinese IECS: This product contains only chemicals that are currently listed on the Chinese Inventory of Existing Chemical Substances

US Federal Regulations

TSCA 12(b) - Export Notification:
This material does not contain any components that are subject to the US Toxic Substances Control Act (TSCA) Section 12(b) Export Notification requirements.

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and and Title 40 of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>SARA 313 Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>45</td>
<td>Listed</td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene 100-42-5</td>
<td>1000 lb</td>
<td></td>
<td></td>
<td>Listed</td>
</tr>
</tbody>
</table>

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product contains the following HAPs:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>HAPS data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>45</td>
<td></td>
</tr>
</tbody>
</table>

CERCLA
This product contains the following reportable quantities:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>40 CFR 302.4 RQ</th>
<th>40 CFR 355 EHS TPQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>1000 lb</td>
<td>454 kg</td>
</tr>
</tbody>
</table>

California Proposition 65

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Prepared By: Polynt Regulatory Department
Revision Date: 17/May/2019
Revision Note: This data sheet contains changes from the previous version in section(s): 3, 5, 16

Former date: 04 September 2018

This information is provided in good faith and is correct to the best of Polynt's knowledge as of the date hereof and is designed to assist our customers; however, Polynt makes no representation as to its completeness or accuracy. Our products are intended for sale to industrial and commercial customers. We require customers to inspect and test our products before use and to satisfy themselves as to suitability for their specific applications. Any use which Polynt customers or third parties make of this information, or any reliance on, or decisions made based upon it, are the responsibility of such customer or third party. Polynt disclaims responsibility for damages, or liability, of any kind resulting from the use of this information. THERE ARE NO WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, INCLUDING THOSE OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THIS INFORMATION OR TO THE PRODUCT IT DESCRIBES. IN NO EVENT SHALL POLYNT BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

End of Safety Data Sheet
1. IDENTIFICATION DE LA SUBSTANCE/DU MELANGE ET DE LA SOCIETE/L'ENTREPRISE

1.1. Identificateur de produit
Nom du produit: POLYLITE® 413-579
Code du produit: 184729 ; 184730
Famille chimique: Résine de polyester insaturé

1.2. Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées

Utilisation recommandée
Catégories de processus [PROC]
- PROC1 - Utilisation dans des processus fermés, exposition improbable
- PROC3 - Utilisation dans des processus fermés par lots (synthèse ou formulation)
- PROC4 - Utilisation dans des processus par lots et d'autres processus (synthèse) pouvant présenter des possibilités d'exposition
- PROC5 - Mélangeage dans des processus par lots pour la formulation de préparations et d'articles (contacts multiples et/ou importants)
- PROC7 - Pulvérisation dans des installations industrielles
- PROC8b - Transfert de substance ou de préparations (chargement/déchargement) à partir de récipients ou de grands conteneurs, ou vers ces derniers, dans des installations spécialisées
- PROC9 - Transfert de substance ou préparation dans de petits conteneurs (chaîne de remplissage spécialisée, y compris pesage)
- PROC10 - Application au rouleau ou au pinceau
- PROC13 - Traitement d'articles par trempage et versage
- PROC14 - Production de préparations ou d'articles par pastillage, compression, extrusion, granulation
- PROC15 - Utilisation en tant que réactif de laboratoire

Utilisations déconseillées
Aucune information disponible

1.3. Renseignements concernant le fournisseur de la fiche de données de sécurité

Fournisseur
Polynt S.p.A.
Via Enrico Fermi, 51
24020 Scanzorosciate (BG)
Italy
Tel: +39 035 652111
Adresse e-mail: msds@polynt.com : +39 035 652111

1.4. Numéro d'appel d'urgence
(CareChem24) +44(0)1235 239670

Numéro téléphonique du centre anti-poison:
France - ORFILA - Tel : 01.45.42.59.59
Luxembourg - Contacter CareChem24

2. IDENTIFICATION DES DANGERS

2.1. - Classification de la substance ou du mélange

Classification selon le règlement (CE) n° 1272/2008 [CLP]
- Toxicité aiguë - Inhalation (poussières/brouillards) Catégorie 4
- Corrosion cutanée/irritation cutanée Catégorie 2
- Lésions oculaires graves/irritation oculaire Catégorie 2
Polylite® 413-579

Date de révision: 09/fevr./2015

Toxicité pour la reproduction
Toxicité spécifique pour certains organes cibles (exposition unique)
Toxicité spécifique pour certains organes cibles (exposition répétée)
Toxicité chronique pour le milieu aquatique
Liquide inflammable

Catégorie 2
Catégorie 3
Catégorie 1
Catégorie 3
Catégorie 3

2.2. Éléments d’étiquetage

Étiquetage conforme au règlement (CE) n° 1272/2008 [CLP]

Mention d’avertissement
Danger

Contient Styrène

Mentions de danger
H332 - Nocif par inhalation
H315 - Provoque une irritation cutanée
H319 - Provoque une sévère irritation des yeux
H335 - Peut irriter les voies respiratoires
H361d - Susceptible de nuire au fœtus
H372 - Risque avéré d’effets graves pour ouïe à la suite d’expositions répétées ou d’une exposition prolongée en cas d’inhalation
H412 - Nocif pour les organismes aquatiques, entraîne des effets néfastes à long terme

H226 - Liquide et vapeurs inflammables

EUH208 - Contient Bis(2-éthylhexanoate) de cobalt. Peut produire une réaction allergique.

0 % du mélange est constitué de composants de toxicité inconnue
54.3 % du mélange est constitué de composants dont la dangerosité pour le milieu aquatique est inconnue

Conseils de prudence - UE (par 28, 1272/2008)
P202 - Ne pas manipuler avant d’avoir lu et compris toutes les précautions de sécurité
P314 - Consulter un médecin en cas de malaise
P370 + P378 - En cas d’incendie : Utiliser du sable sec, un agent chimique sec ou de la mousse résistante à l’alcool pour l’extinction
P210 - Tenir à l’écart de la chaleur, des étincelles, des flammes nues, des surfaces chaudes. - Ne pas fumer
P260 - Ne pas respirer les brouillards/vapeurs/aérosols
P280 - Porter des gants de protection et un équipement de protection des yeux/du visage

2.3. Autres dangers
Aucune information disponible.

3. COMPOSITION/INFORMATIONS SUR LES COMPOSANTS

3.2. Mélange

<table>
<thead>
<tr>
<th>Nom chimique</th>
<th>N° CE</th>
<th>Numéro CAS</th>
<th>% massique</th>
<th>EU - GHS De classification des substances</th>
<th>N° d’enr. REACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrène</td>
<td>202-851-5</td>
<td>100-42-5</td>
<td>43.5 - 47.5</td>
<td>STOT SE 3 (H335) STOT RE 2 (H373) Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Repr. 2 H361d</td>
<td>01-2119457861-32</td>
</tr>
</tbody>
</table>
4. PREMIERS SECOURS

4.1. Description des premiers secours

**Contact oculaire**
Rincer immédiatement les yeux pendant au moins 15 minutes. Consulter un médecin.

**Contact cutané**
Laver à l'eau chaude et au savon. Retirer les chaussures et vêtements contaminés. Si l'irritation cutanée persiste, consulter un médecin. Laver les vêtements contaminés avant réutilisation.

**Ingestion**
NE PAS faire vomir. Ne jamais faire ingérer quoi que ce soit à une personne inconsciente. Consulter immédiatement un médecin.

**Inhalation**
En cas d'inconscience, coucher et transporter la personne en position latérale stable. Transporter la victime à l'air frais. Si la respiration est difficile, administrer de l'oxygène. En l'absence de respiration, pratiquer la respiration artificielle. Consulter immédiatement un médecin.

4.2. Principaux symptômes et effets, aigus et différés
Irritant pour les yeux, les voies respiratoires et la peau. L'inhalation de hautes concentrations de vapeur peut provoquer une dépression du Système Nerveux Central et une narcose. L'exposition répétée au styrène peut entraîner des effets entendre.

4.3. Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires

**Notes au médecin**
Traiter les symptômes.

5. MESURES DE LUTTE CONTRE L'INCENDIE

5.1. Moyens d'extinction

Moyens d'extinction appropriés
Dioxyde de carbone (CO2), Mousse, Jet d'eau, poudre sèche, Agent chimique sec

Moyens d'extinction à ne pas utiliser pour des raisons de sécurité
Ne pas utiliser de jet d'eau sous pression, risque de disperser et d'étendre l'incendie.

5.2. Dangers particuliers résultant de la substance ou du mélange
Tout danger particulier résultant de l'exposition à la substance/préparation en tant que telle, aux produits de la combustion, aux gaz produits
Inflammable. Les vapeurs peuvent former des mélanges explosifs avec l'air. Les vapeurs peuvent se diffuser jusqu'à des zones éloignées du site de travail avant de s'enflammer ou de provoquer un retour de flamme vers leur source. La combustion peut produire du monoxyde de carbone, dioxyde de carbone, vapeurs irritantes ou toxiques et les gaz. Combattre l'incendie depuis la position la plus éloignée possible, ou utiliser des porte-tuyaux ou des buses automatisées. Éloigner les récipients de l'incendie si cela n'entraîne pas de risque. Refroidir les récipients en les inondant d'eau et continuer longtemps après l'extinction de l'incendie. Quitter immédiatement la zone en cas d'émission d'un bruit croissant par les dispositifs de ventilation de sécurité ou de décoloration du réservoir. Les résidus de l'incendie et l'eau d'extinction d'incendie contaminée doivent être éliminés conformément aux réglementations locales.

5.3. Conseils aux pompiers
Tout équipement de protection spécial pour le personnel préposé à la lutte contre le feu
Comme lors de tout incendie, porter un équipement respiratoire autonome et un équipement complet de protection. Porter un appareil respiratoire autonome et une combinaison de protection.

### 6. MESURES À PRENDRE EN CAS DE DISPERSION ACCIDENTELLE

#### 6.1. Précautions individuelles, équipement de protection et procédures d’urgence


Tout matériel utilisé pour la manipulation de ce produit doit être mis à la terre.

#### 6.2. Précautions pour la protection de l’environnement

Le produit ne doit pas contaminer les eaux souterraines. Empêcher le produit de pénétrer les égouts. Ne doit pas être rejeté dans l'environnement. Endiguer la fuite ou le déversement si cela peut être fait sans danger. Attention aux vapeurs qui s'accumulent en formant des concentrations explosives. Les vapeurs peuvent s'accumuler dans les zones basses.

#### 6.3. Méthodes et matériel de confinement et de nettoyage

Une mousse antivapeur peut être utilisée pour réduire les vapeurs. Absorber le déversement avec une matière inerte (par exemple de la terre ou du sable sec), puis la placer dans un récipient à déchets chimiques. Utiliser des outils propres anti-étincelles pour recueillir la matière absorbée.

#### 6.4. Référence à d’autres sections

Voir Section 12 pour plus d’informations

### 7. MANIPULATION ET STOCKAGE

#### 7.1. Précautions à prendre pour une manipulation sans danger

**Manipulation**


**Remarques générales en matière d'hygiène**

Manipuler conformément aux bonnes pratiques industrielles d'hygiène et de sécurité.

#### 7.2. Conditions d’un stockage sûr, y compris d’éventuelles incompatibilités

Tenir à l'écart de la chaleur et des sources d'ignition. Ne pas fumer. Protéger de la lumière du jour. Conserver à l'écart des matières incompatibles. Conserver les récipients bien fermés et dans un endroit frais et bien ventilé. Pour assurer une stabilité maximale et maintenir les propriétés optimales de la résine, celle-ci doit être entreposée dans des conteneurs fermés à des températures inférieures à 25°C.

#### 7.3. Utilisation(s) finale(s) particulière(s)

**Autres recommandations**

Aucune information disponible.

### 8. CONTRÔLES DE L’EXPOSITION/PROTECTION INDIVIDUELLE

#### 8.1. Paramètres de contrôle

**Limites d'exposition**
Composants avec valeurs limites d'exposition professionnelle.

**Styrène**

| Autriche | 80 ppm STEL  
|          | 340 mg/m³ STEL  
|          | 20 ppm TWA  
|          | 85 mg/m³ TWA  |

| Belgique | 25 ppm TWA  
|          | 108 mg/m³ TWA  
|          | (skin)  
|          | 80 ppm STEL  
|          | 346 mg/m³ STEL  |

| Bulgarie | 85.0 mg/m³ TWA  |

| Croatie | 250 ppm STEL KGVI  
|         | 1080 mg/m³ STEL KGVI  
|         | 100 ppm TWA GVI  
|         | 430 mg/m³ TWA GVI  |

| République tchèque | 400 mg/m³ Ceiling  
|                    | 100 mg/m³ TWA  
|                    | (skin)  |

| Danemark | 25 ppm Ceiling  
|          | 105 mg/m³ Ceiling  
|          | (skin)  |

| Estonie | 20 ppm TWA  
|         | 90 mg/m³ TWA  
|         | 50 ppm STEL  
|         | 200 mg/m³ STEL  
|         | (skin)  |

| Finlande | 20 ppm TWA  
|          | 86 mg/m³ TWA  
|          | 100 ppm STEL  
|          | 430 mg/m³ STEL  |

| France | 23.3 ppm TWA  
|        | 100 mg/m³ TWA  
|        | 46.6 ppm STEL  
|        | 200 mg/m³ STEL  |

| Allemagne | 20 ppm TWA  
|           | 86 mg/m³ TWA  |

| Grèce | 100 ppm TWA  
|       | 425 mg/m³ TWA  
|       | 250 ppm STEL  
|       | 1050 mg/m³ STEL  |

| Hongrie | 50 mg/m³ TWA AK  
|         | 50 mg/m³ STEL CK  |

| Irlande | 20 ppm TWA  
|         | 85 mg/m³ TWA  
|         | 40 ppm STEL  
|         | 170 mg/m³ STEL  |

| Italie | 20 ppm TWA  
|        | 85 mg/m³ TWA  
|        | 40 ppm STEL  
|        | 170 mg/m³ STEL  |

| Lettonie | 10 mg/m³ TWA  
|          | 30 mg/m³ STEL  |

| Lituanie | 20 ppm TWA (IPRD)  
|          | 90 mg/m³ TWA (IPRD)  
|          | 10 ppm TWA (IPRD)  
|          | 50 ppm STEL (TPRD)  
|          | 200 mg/m³ STEL (TPRD)  
|          | (skin)  |

<p>| Norvège | 25 ppm TWA  |</p>
<table>
<thead>
<tr>
<th>Pays</th>
<th>Données OELs</th>
<th>TWA</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pologne</td>
<td></td>
<td>105 mg/m³</td>
<td>50 mg/m³</td>
</tr>
<tr>
<td>Portugal</td>
<td></td>
<td>20 ppm</td>
<td>40 ppm</td>
</tr>
<tr>
<td>Roumanie</td>
<td></td>
<td>12 ppm TWA</td>
<td>50 mg/m³ TWA</td>
</tr>
<tr>
<td>Russie</td>
<td></td>
<td>10 mg/m³ (vapor)</td>
<td>30 mg/m³ (vapor)</td>
</tr>
<tr>
<td>Slovaquie</td>
<td></td>
<td>20 ppm TWA</td>
<td>86 mg/m³</td>
</tr>
<tr>
<td>Slovénie</td>
<td></td>
<td>20 ppm TWA</td>
<td>86 mg/m³</td>
</tr>
<tr>
<td>Espagne</td>
<td></td>
<td>20 ppm TWA</td>
<td>86 mg/m³</td>
</tr>
<tr>
<td>Suède</td>
<td></td>
<td>10 ppm LLV</td>
<td>86 mg/m³ STEL</td>
</tr>
<tr>
<td>Suisse</td>
<td></td>
<td>40 ppm STEL</td>
<td>170 mg/m³</td>
</tr>
<tr>
<td>Royaume-Uni</td>
<td></td>
<td>100 ppm TWA</td>
<td>430 mg/m³</td>
</tr>
<tr>
<td>ACGIH - TLV</td>
<td></td>
<td>20 ppm TWA</td>
<td>430 mg/m³</td>
</tr>
</tbody>
</table>

**Bis(2-éthylhexanoate) de cobalt**

<table>
<thead>
<tr>
<th>Pays</th>
<th>TWA</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autriche</td>
<td>(skin)</td>
<td>(skin)</td>
</tr>
<tr>
<td>République tchèque</td>
<td>0.1 mg/m³ Ceiling</td>
<td>0.05 mg/m³ TWA</td>
</tr>
<tr>
<td>Grèce</td>
<td>0.1 mg/m³ TWA</td>
<td></td>
</tr>
<tr>
<td>Irlande</td>
<td>0.1 mg/m³ TWA</td>
<td>0.3 mg/m³ STEL</td>
</tr>
<tr>
<td>Norvège</td>
<td>0.02 mg/m³ TWA</td>
<td>0.06 mg/m³ STEL</td>
</tr>
<tr>
<td>Suisse</td>
<td>(skin)</td>
<td></td>
</tr>
<tr>
<td>Royaume-Uni</td>
<td>0.05 mg/m³ TWA</td>
<td>0.1 mg/m³ TWA</td>
</tr>
</tbody>
</table>

**Légende**

- ACGIH (Association américaine des hygiénistes industriels, États-Unis)
- TLV® (Valeur limite d'exposition, États-Unis)
- TWA (moyenne pondérée en temps)
- STEL (Limite d'exposition à court terme, États-Unis)
- MAK - Limites maximales d'exposition professionnelle
- SKIN: Absorption par la peau

**Valeurs limites biologiques d'exposition professionnelle**
## Nom chimique

### Bulgarie
- BEI: 600 mg/g Creatinine, DETERMINANT: Mandelic acid and Phenylglyoxylic acid - together in urine, SAMPLING TIME: at the end of exposure or end of shift, in remote exposure - after several shifts

### Finlande
- BEI: 1.2 mmol/L, DETERMINANT: MAPGA in urine, SAMPLING TIME: prior to shift, NOTE: MAPGA equals sum of urinary Mandelic and Phenylglyoxylic acids

### France
- BEI: 0.55 mg/L, DETERMINANT: Styrene in venous blood, SAMPLING TIME: end of shift, NOTE: Semi-quantitative (ambiguous interpretation)
- BEI: 0.02 mg/L, DETERMINANT: Styrene in venous blood, SAMPLING TIME: prior to shift, NOTE: Semi-quantitative (ambiguous interpretation)
- BEI: 800 mg/g creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: end of shift, NOTE: Non-specific (observed after the exposure to other substances)
- BEI: 300 mg/g creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: prior to shift, NOTE: Non-specific (observed after the exposure to other substances)
- BEI: 240 mg/g creatinine, DETERMINANT: Phenylglyoxylic acid in urine, SAMPLING TIME: end of shift, NOTE: Non-specific (observed after the exposure to other substances)
- BEI: 100 mg/g creatinine, DETERMINANT: Phenylglyoxylic acid in urine, SAMPLING TIME: prior to shift, NOTE:

### Allemagne
- BEI: 600 mg/g, DETERMINANT: Mandelic acid plus Phenylglyoxylic acid in urine, SAMPLING TIME: end of shift, NOTE: measured as mg/g Creatinine
- BEI: 600 mg/g, DETERMINANT: Mandelic acid plus Phenylglyoxylic acid in urine, SAMPLING TIME: end of several shifts, NOTE: measured as mg/g Creatinine; for long-term exposures

### Lettonie
- BEI: 0.8 g/g Creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: end of shift
- BEI: 0.55 mg/l, DETERMINANT: Styrene in blood, SAMPLING TIME: end of shift

### Roumanie
- BEI: 800 mg/g creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: end of shift
- BEI: 300 mg/g creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: beginning of second shift
- BEI: 100 mg/g creatinine, DETERMINANT: Phenylglyoxylic acid in urine, SAMPLING TIME: end of shift
- BEI: 100 mg/g creatinine, DETERMINANT: Phenylglyoxylic acid in urine, SAMPLING TIME: beginning of second shift
- BEI: 0.55 mg/L, DETERMINANT: Styrene in blood, SAMPLING TIME: end of shift
- BEI: 0.02 mg/L, DETERMINANT: Styrene in blood, SAMPLING TIME: beginning of second shift

### Slovaquie
- BEI: 600 mg/g creatinine, DETERMINANT: Mandelic acid and phenylglycolic acid in urine, SAMPLING TIME: after all work shifts, NOTE: for long-term exposure
- BEI: 600 mg/g creatinine, DETERMINANT: Mandelic acid and phenylglycolic acid in urine, SAMPLING TIME: end of work shift, NOTE:

### Communication

<table>
<thead>
<tr>
<th>Nom chimique</th>
<th>Niveau dérivé sans effet (DNEL)</th>
<th>Concentration prévisible sans effet (PNEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styène</td>
<td>L'utilisation finale: Travailleurs</td>
<td>L'eau douce Value: 0.028 mg/l Facteur d'évaluation: 10</td>
</tr>
<tr>
<td></td>
<td>Voie d'exposition: Inhalation</td>
<td>L'eau de mer Value: 0.0028 mg/l Facteur d'évaluation: 100</td>
</tr>
<tr>
<td></td>
<td>Type d'exposition: Aiguë, les effets systémiques</td>
<td>Eau Value: 0.04 mg/l Communiqués intermittents Facteur d'évaluation: 100</td>
</tr>
<tr>
<td></td>
<td>Valeur: 289 mg/m³ (68 ppm)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L'utilisation finale: Travailleurs</td>
<td>Sédiments d'eau douce Value: 0.614 mg/kg dw</td>
</tr>
<tr>
<td></td>
<td>Voie d'exposition: Inhalation</td>
<td>Sédiments de la mer Value: 0.0614 mg/kg dw</td>
</tr>
<tr>
<td></td>
<td>Type d'exposition: À long terme, des effets systémiques</td>
<td>Usine de traitement des eaux usées</td>
</tr>
<tr>
<td></td>
<td>Valeur: 306 mg/m³ (72 ppm)</td>
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<tr>
<td></td>
<td>L'utilisation finale: Travailleurs</td>
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<td></td>
<td>Voie d'exposition: Dermique</td>
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<tr>
<td></td>
<td>Type d'exposition: Inhalation</td>
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<tr>
<td></td>
<td>Valeur: 85 mg/m³ (20 ppm)</td>
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<td>L'utilisation finale: Travailleurs</td>
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<td></td>
<td>Voie d'exposition: Dermique</td>
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</tr>
<tr>
<td>Type d'exposition: À long terme, des effets systémiques</td>
<td>Valeur: 406 mg/kg bw/jours</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
<td>---------------------------</td>
<td></td>
</tr>
<tr>
<td>L'utilisation finale: Population générale</td>
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<tr>
<td>Voie d'exposition: Inhalation</td>
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<tr>
<td>Type d'exposition: Aiguë, les effets systémiques</td>
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<tr>
<td>Valeur: 174.25 mg/m³ (41 ppm)</td>
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<td>L'utilisation finale: Population générale</td>
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<tr>
<td>Voie d'exposition: Inhalation</td>
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<td></td>
</tr>
<tr>
<td>Type d'exposition: Aiguë, les effets locaux</td>
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<tr>
<td>Valeur: 182.75 mg/m³ (43 ppm)</td>
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<td>L'utilisation finale: Population générale</td>
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<tr>
<td>Voie d'exposition: Inhalation</td>
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<tr>
<td>Type d'exposition: À long terme, des effets systémiques</td>
<td>Valeur: 10.2 mg/m³ (2.4 ppm)</td>
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<td>L'utilisation finale: Population générale</td>
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<td>Voie d'exposition: Dermique</td>
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<tr>
<td>Type d'exposition: À long terme, des effets systémiques</td>
<td>Valeur: 343 mg/kg bw/jours</td>
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<tr>
<td>Bis(2-éthylhexanoate) de cobalt</td>
<td></td>
<td></td>
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<tr>
<td>Utilisation Fin: Travaillers</td>
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<td></td>
</tr>
<tr>
<td>Voie d'exposition: Inhalation</td>
<td></td>
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</tr>
<tr>
<td>Type d'exposition: Long terme, les effets locaux</td>
<td>Valeur: 235 ug/m³</td>
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<tr>
<td>Utilisation Fin: Population en général</td>
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</tr>
<tr>
<td>Voie d'exposition: Orale</td>
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<td></td>
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<tr>
<td>Type d'exposition: Long terme, des effets systémiques</td>
<td>Valeur: 55.8 ug/kg bw/jours</td>
<td></td>
</tr>
<tr>
<td>Utilisation Fin: Population en général</td>
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<td></td>
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<tr>
<td>Voie d'exposition: Inhalation</td>
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<td></td>
</tr>
<tr>
<td>Type d'exposition: Long terme, les effets locaux</td>
<td>Valeur: 37 ug/m³</td>
<td></td>
</tr>
<tr>
<td>D'eau douce</td>
<td>Valeur: 0.51 ug Co/L</td>
<td></td>
</tr>
<tr>
<td>D'eau marine</td>
<td>Valeur: 2.36 ug Co/L</td>
<td></td>
</tr>
<tr>
<td>Sédiments</td>
<td>Valeur: 9.5 mg Co/kg sed. dw</td>
<td></td>
</tr>
<tr>
<td>Usine de traitement des eaux usées</td>
<td>Valeur: 0.37 mg Co/l</td>
<td></td>
</tr>
</tbody>
</table>

### 8.2. Contrôles de l'exposition

#### Contrôles techniques
Mettre en place une ventilation adéquate, en particulier dans les zones confinées. Faire circuler l'air afin de maintenir les concentrations atmosphériques à des niveaux répondant aux limites d'exposition professionnelles recommandées et réglementaires. S'assurer que les rince-œil et les douches de sécurité sont proches du poste de travail. Certaines opérations peuvent nécessiter une ventilation locale.

#### Équipement de protection individuelle

**Protection des yeux**
Lunettes de sécurité avec protections latérales conforme à l'EN166. En cas de probabilité d'éclaboussures : Lunettes de sécurité à protection intégrale (EN166). S'assurer que les rince-œil et les douches de sécurité sont proches du poste de travail.

**Protection de la peau**
Vêtements imperméables.

**Protection des mains**
Gants de protection conformes à EN 374. Porter des gants de protection en caoutchouc nitrile ou en Viton™. Des gants faits de caoutchouc nitrile ou chlorure polyvinylique (PVC)
peuvent être employés pour la protection d'éclaboussure et le bref ou intermittent contact avec de la résine styrenated de polyester. Veuillez observer les instructions concernant la perméabilité et le temps de pénétration qui sont fournies par le fournisseur de gants.

Prendre également en considération les conditions locales spécifiques dans lesquelles le produit est utilisé, telles qu.

**Protection respiratoire**

Aucune requise si les risques ont été estimés et la concentration dans l'air est maintenue sous les limites d'exposition listées dans la Section 8. Porter un appareil respiratoire filtrant autorisé à cartouches de vapeur organique et filtres particulaires où la concentration dans l'air peut dépasser les limites d'exposition listées dans la Section 8 et/ou s'il y a exposition à la poussière ou à des pulvérisations résultant de ponçage, broyage, découpage ou de l'utilisation d'un pulvérisateur. Utiliser un appareil respiratoire autorisé à adduction d'air à pression positive tout en ayant un plan d'évacuation d'urgence s'il y a une possibilité de libération incontrollée, la concentration dans l'air est inconnue, ou dans n'importe quelle autre circonstance où l'appareil respiratoire peut ne pas procurer la protection adequate.

**Type de filtre recommandé**

Type A (EN141) et Type P2 (EN143)

**Contrôles d'exposition liés à la protection de l'environnement**

Avertir les autorités locales s'il est impossible de confiner des déversements significatifs.

### 9. PROPRÉTÉS PHYSIQUES ET CHIMIQUES

#### 9.1. Informations sur les propriétés physiques et chimiques essentielles

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Transparent</th>
</tr>
</thead>
<tbody>
<tr>
<td>État physique</td>
<td>Liquide</td>
</tr>
<tr>
<td>Odeur</td>
<td>Âcre</td>
</tr>
<tr>
<td>Seuil olfactif</td>
<td>0.2 ppm (Styrène)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pH</th>
<th>Aucune information disponible</th>
<th>Aucun(e) connu(e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point de fusion/point de congélation</td>
<td>Aucune information disponible</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td>Point / intervalle d'ébullition</td>
<td>Aucune information disponible</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td>Point d’éclair</td>
<td>32 °C</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td>Taux d’évaporation</td>
<td>Aucune information disponible</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td>Limites d’inflammabilité dans l’air Supérieure</td>
<td>6.1% (Styrène)</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td></td>
<td>Inférieure</td>
<td>1.1% (Styrène)</td>
</tr>
<tr>
<td>Pression de vapeur</td>
<td>6.7 hPa (Styrène) @ 20°C</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td>Densité de vapeur</td>
<td>3.6 (Air = 1) (Styrène)</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td>Densité</td>
<td>Aucune information disponible</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td>Solubilité</td>
<td>Insoluble (Eau)</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td>Coefficient de partage : n-octanol/eau</td>
<td>Aucune information disponible</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td>Température d’auto-inflammabilité</td>
<td>490°C (Styrène)</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td>Température de décomposition</td>
<td>Aucune information disponible</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td>Viscosité</td>
<td>155 - 170 cps @ 25°C</td>
<td>Aucun(e) connu(e)</td>
</tr>
<tr>
<td>Propriétés explosives</td>
<td>Aucune information disponible</td>
<td></td>
</tr>
<tr>
<td>Propriétés comburantes</td>
<td>Aucune information disponible</td>
<td></td>
</tr>
</tbody>
</table>

#### 9.2. Autres informations

Aucune information disponible

### 10. STABILITÉ ET RÉACTIVITÉ

#### 10.1. Réactivité

- Instable après l’épuisement de l’agent inhibiteur.

#### 10.2. Stabilité chimique

Stable dans les conditions normales. Stable dans les conditions de stockage recommandées.
10.3. Possibilité de réactions dangereuses
Le produit subit une polymérisation dangereuse à des températures supérieures à 150 F (65 C). Tout contact avec des peroxydes, des sels métalliques et des catalyseurs de polymérisation entraîne une réaction dangereuse. Une polymérisation dangereuse peut avoir lieu après l'épuisement de l'agent inhibiteur - peut engendrer une augmentation de la chaleur et de la pression dans des récipients fermés. Une polymérisation peut se produire.

10.4. Conditions à éviter
Chaleur, flammes et étincelles. La contamination par ces substances est mentionnée sous Matières à éviter. Instable après l'épuisement de l'agent inhibiteur. Température supérieure à l'ambiante.

10.5. Matières incompatibles

10.6. Produits dangereux résultant de la décomposition
Hydrocarbures. Monoxyde de carbone. Dioxyde de carbone (CO2). La décomposition thermique peut entraîner le dégagement de gaz et de vapeurs irritants et toxiques.

11. INFORMATIONS TOXICOLOGIQUES

11.1. Informations sur les effets toxicologiques
Toxicité aiguë

**Styrène**

- DL50 par voie orale = 5000 mg/kg (Rat)
- DL50, voie cutanée > 2000 mg/kg (Rat)
- CL50 par inhalation = 11.8 mg/l (4 H) (Rat)

**Inhalation**
Peut provoquer une irritation des voies respiratoires. L'inhalation de hautes concentrations de vapeur peut provoquer une dépression du Système Nerveux Central et une narcose.

**Ingestion**
L'ingestion peut entraîner irritation gastro-intestinale, nausées, vomissements et diarrhée.

**Contact cutané**
Provoque une irritation cutanée. En cas de contact cutané prolongé, peut entraîner une délipidation de la peau et une dermatite. Peut provoquer une réaction allergique cutanée.

**Contact oculaire**
Provoque une sévère irritation des yeux. Irritant pour les yeux.

**Irritation**
Irritant pour les yeux, les voies respiratoires et la peau. Irritant pour les yeux et la peau.

**Corrosivité**
Non corrosif.

**Sensibilisation**
Aucune information disponible.

**Effets cancérigènes**
Il n'existe aucun signe convaincant que le styrène a un potentiel cancérigène chez l'homme.

**Toxicité par administration répétée**
Chez l'homme, le styrène peut causer une diminution passagère de discrimination colorée et des effets sur l'audition. Une exposition répétée ou prolongée peut provoquer une irritation de la peau et des dermatoses à cause des propriétés dégraissantes du produit. Risque présumé d'effets graves pour le foie, les yeux, le cerveau, le système respiratoire, le système nerveux central, en cas d'expositions répétées ou prolongées par inhalation.

**Effets mutagènes**
Le styrène a donné des résultats variables positifs et négatifs dans un nombre de tests mutagéniques. Il n'était pas mutagénique sans activation métabolique mais donnait des résultats mutagéniques négatifs et positifs avec activation métabolique.

**Toxicité pour la reproduction**
Peut nuire à la fertilité ou au foetus.

**Organe(s) cible(s)**
Foie, Rein, Système nerveux central (SNC), Système respiratoire, Oreilles, Yeux, Appareil
reproducteur, Peau.

Mesures numériques de toxicité - Informations sur le produit

Toxicité aiguë inconnue 0 % du mélange est constitué de composants de toxicité inconnue

Les valeurs suivantes sont calculées d’après le chapitre 3.1 du SGH

ETAmél (voie orale) 11014 mg/kg
ETAmél (voie cutanée) 4408 mg/kg
ETAmél 3.3 mg/l
(inhalation-poussières/brouillard)
ETAmél (inhalation-vapeurs) 26 mg/l

12. INFORMATIONS ÉCOLOGIQUES

12.1. Toxicité

Styrène
Algues EC50 = 1.4 mg/L (Pseudokirchneriella subcapitata) (72h)
EC50 0.46 - 4.3 mg/L (Pseudokirchneriella subcapitata) (72h)
Poison LC50 3.24 - 4.99 mg/L (Pimephales promelas) (96 h) flow-through
LC50 19.03 - 33.53 mg/L (Lepomis macrochirus) (96 h) static
LC50 6.75 - 14.5 mg/L (Pimephales promelas) (96 h) static
LC50 58.75 - 95.32 mg/L (Poecilia reticulata) (96 h) static
Invertébrés Aquatiques EC50 3.3 - 7.4 mg/L (Daphnia magna) (48h)

Bis(2-éthylhexanoate) de cobalt
Algues EC50 = 0.639 mg/L

12.2. Persistance et dégradabilité

Aucune information disponible.

12.3. Potentiel de bioaccumulation

Bioaccumulation peu probable.

Styrène
log Kow 2.95
Facteur de bioconcentration (BCF) 74

12.4. Mobilité dans le sol

Aucune information disponible.

12.5. Résultats des évaluations PBT et vPvB

Cette préparation ne contient aucune substance considérée comme persistante, bioaccumulable ou toxique (PBT) Ce mélange ne contient aucune substance considérée comme très persistante ou très bioaccumulable (vPvB)

12.6. Autres effets néfastes

Aucune information disponible

13. CONSIDÉRATIONS RELATIVES À L’ÉLIMINATION

13.1. Méthodes de traitement des déchets

Déchets de résidus/produits inutilisés Éliminer le produit et son récipient comme un déchet dangereux. Éliminer le contenu et les récipients conformément aux réglementations locales. Peut être incinéré, si les réglementations locales le permettent.

Emballages contaminés Les récipients vides doivent être mis à la disposition des usines locales pour leur recyclage ou leur élimination.

Code de déchets du CED 07 00 00 Déchets provenant de procédés chimiques organiques
07 02 00 déchets provenant de la FFDU de matières plastiques, caoutchouc et fibres synthétiques
07 02 99 Déchets non spécifiés ailleurs

### 14. INFORMATIONS RELATIVES AU TRANSPORT

**ADR/RID**

<table>
<thead>
<tr>
<th>N° ONU</th>
<th>UN1866</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom d'expédition</td>
<td>RÉSINE EN SOLUTION</td>
</tr>
<tr>
<td>Classe de danger</td>
<td>3</td>
</tr>
<tr>
<td>Groupe d'emballage</td>
<td>III</td>
</tr>
<tr>
<td>Code de classification</td>
<td>F1</td>
</tr>
<tr>
<td>Numéro d'identification de danger (n° Kemler)</td>
<td>30</td>
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<tr>
<td>Code de restriction en tunnel</td>
<td>D/E</td>
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**IMDG/IMO**

<table>
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<td>Nom d'expédition</td>
<td>RÉSINE EN SOLUTION</td>
</tr>
<tr>
<td>Classe de danger</td>
<td>CLASS 3</td>
</tr>
<tr>
<td>Groupe d'emballage</td>
<td>PG III</td>
</tr>
<tr>
<td>N° d'urgence</td>
<td>F-E, S-E</td>
</tr>
</tbody>
</table>

Transport en vrac conformément à l’annexe II de la convention Marpol 73/78 et au recueil IBC

Aucune information disponible

**IATA**

<table>
<thead>
<tr>
<th>N° ONU</th>
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<tbody>
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<td>Nom d'expédition</td>
<td>RÉSINE EN SOLUTION</td>
</tr>
<tr>
<td>Classe de danger</td>
<td>3</td>
</tr>
<tr>
<td>Groupe d'emballage</td>
<td>III</td>
</tr>
<tr>
<td>Instructions d'Emballage</td>
<td>355; 366</td>
</tr>
</tbody>
</table>

### 15. INFORMATIONS RÉGLEMENTAIRES

#### 15.1. Réglementations/législation particulières à la substance ou au mélange en matière de sécurité, de santé et d’environnement

**Italie**
- EUROPEAN REGULATION 1907/2006 / EC (Reach)
- EUROPEAN REGULATION 1272/2008 / EC (CLP)
- EUROPEAN REGULATION 830/2015 / EU
- Legislative Decree 81/2008
- Legislative Decree 105/2015

**Danemark**

**Liste des substances et procédés qui sont considérés comme cancérigènes**

<table>
<thead>
<tr>
<th>Nom chimique</th>
<th>Statut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrène (CAS #: 100-42-5)</td>
<td>Present</td>
</tr>
<tr>
<td>Bis(2-éthylhexanoate) de cobalt (CAS #: 136-52-7)</td>
<td>Present (Cobalt compounds)</td>
</tr>
</tbody>
</table>

**Informations supplémentaires**

Ne doit pas être utilisé par les jeunes de moins de 18 ans, réf. la notification du ministère du Travail concernant le travail par les jeunes. L'utilisateur doit avoir suivi une formation spécialisée approuvée par l'inspection du travail (AT) afin de travailler avec des produits contenant des substances cancérigènes.

**Allemagne**


Classification allemande WGK (VwVwS)
Danger pour le milieu aquatique/Classe 2

Pays-Bas

Liste des substances cancérigènes, mutagènes et toxiques pour la reproduction
Aucune information disponible

Classe de danger pour le milieu aquatique
10 - Peut entraîner des effets néfastes à long terme pour l'environnement aquatique.

Inventaires internationaux

TSCA État d'inventaire: Tous les composants de cette substance sont répertoriés dans l'inventaire du TSCA (Toxic Substances Control Act) des États-Unis.

État d'inventaire Canadien: Cette substance contient un ou plusieurs composants qui figurent sur la Liste extérieure des substances (LES) canadiennes.

État d'inventaire Australien: Cette substance ne contient que des produits chimiques figurant sur l'Inventaire des produits chimiques d'Australie.

Korean inventaariolista: Ce produit ne contient que des agents chimiques figurant sur la Liste des substances chimiques de Corée.

La Inventaire Philippin: Cette substance contient un ou plusieurs des produits chimiques ne figurant pas sur la inventaire philippin des produits chimiques et des substances de produit chimique.

Japan ENCS: Cette substance contient un ou plusieurs des produits chimiques ne figurant pas sur la inventaire Japonais des substances chimiques existantes et nouvelles.

Chinois IECS: Cette substance ne contient que des produits chimiques figurant sur la inventaire Chinois des substances chimiques existantes.

Inventaire de la Nouvelle Zélande : Ce produit ne contient que des agents chimiques figurant sur la Liste des substances chimiques de New Zealand.

Inscriptions Produit
Norvège Sans objet
Danemark Sans objet

15.2. Évaluation de la sécurité chimique
Évaluation de la sécurité chimique indisponible

16. AUTRES INFORMATIONS

Procédure de classement
Toxicité aiguë - Inhalation (vapeurs) Méthode de calcul
Toxicité aiguë - Inhalation (poussières/brouillards) Méthode de calcul
Corrosion cutanée/irritation cutanée Méthode de calcul
Lésions oculaires graves/irritation oculaire Méthode de calcul
Toxicité pour la reproduction force probante des données
Toxicité spécifique pour certains organes cibles (exposition unique) Méthode de calcul
Toxicité spécifique pour certains organes cibles (exposition répétée) Méthode de calcul
Toxicité chronique pour le milieu aquatique Méthode de calcul
Liquide inflammable D’après les données d’essai

Texte intégral des mentions H citées dans les sections 2 et 3
H304 - Peut être mortel en cas d'ingestion et de pénétration dans les voies respiratoires
H315 - Provoque une irritation cutanée
H319 - Provoque une sévère irritation des yeux
H332 - Nocif par inhalation
H226 - Liquide et vapeurs inflammables
H400 - Très toxique pour les organismes aquatiques
H302 - Nocif en cas d'ingestion
H336 - Peut provoquer somnolence ou vertiges
H361d - Susceptible de nuire au fœtus
H317 - Peut provoquer une allergie cutanée
H361fd - Susceptible de nuire à la fécondité, Susceptible de nuire au fœtus

Préparée par Polynet product regulatory department
Phone n. +39 035 652111

Date de révision 09/févr./2015

Motif de la révision Aucun(e)

Date précédente Nouveau

Les présentes informations sont fournies de bonne foi et sont correctes au mieux de la connaissance de Polynet à partir de la date ci-incluse et sont à l'intention de nos clients. En revanche, Polynet ne fait aucune représentation relativement à l'exhaustivité ou à l'exactitude des informations. Nos produits sont à l'intention des clients industriels et commerciaux. Nous exigeons de nos clients qu'ils inspectent et vérifient nos produits avant de les utiliser et qu'ils s'assurent que le produit convient à leurs applications spécifiques. Toute utilisation de ces informations par les clients ou tierces parties de Polynet, ou toute décision prise reposant sur ces informations, est la responsabilité du client ou de la tierce partie. Polynet ne peut être tenu responsable de tout dommage ou responsabilité de quelque nature que ce soit résultant de l'utilisation des ces informations. POLYNET DÉSAVOUE TOUTE AUTRE GARANTIE OU REPRÉSENTATION, EXPRESSE OU IMPLICITE, Y COMPRIS LES GARANTIES IMPLICITES DU CARACTÈRE ADÉQUAT POUR LA COMMERCIALISATION OU UN USAGE PARTICULIER EN CE QUI CONCERNE LES INFORMATIONS OU LE PRODUIT. POLYNET N'A D'OBLIGATION EN AUCUNE CIRCONSTANCE POUR TOUT DOMMAGE PARTICULIER, ACCESSOIRE OU INDIRECT.

Fin de la Fiche de données de sécurité
Section 1. Chemical product and company identification

A. Product name : SIGMAFAST 278 BASE RAL 7035
   Product code : 000001183260

Other means of identification
   00437570; 00453938; 00469781

B. Relevant identified uses of the substance or mixture and uses advised against

   Product use : Professional applications, Used by spraying.
   Use of the substance/mixture : Coating.
   Uses advised against : Product is not intended, labelled or packaged for consumer use.

C. Supplier’s or Importer’s information

   Supplier’s/Importer’s information : PPG SSC
   (680-090)
   19, Yeocheon-ro 217beon-gil, Nam-gu,
   Ulsan, Korea
   Tel: +82-52-210-8222
   Email Address : Korea.MSDS@PPG.COM
   Emergency telephone number : +82-52-210-8331

Section 2. Hazards identification

A. Hazard classification

   FLAMMABLE LIQUIDS - Category 3
   SKIN IRRITATION - Category 2
   EYE IRRITATION - Category 2A
   SKIN SENSITIZATION - Category 1
   CARCINOGENICITY - Category 2
   SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
   AQUATIC HAZARD (LONG-TERM) - Category 2

   This product is classified in accordance with the Industrial Safety and Health Act and the Chemical Control Act.

B. GHS label elements, including precautionary statements

   Symbol : 🔥️ ⛔️ ⚠️ 🌿

   Signal word : Warning
Section 2. Hazards identification

Hazard statements:
- H226 - Flammable liquid and vapor.
- H315 - Causes skin irritation.
- H317 - May cause an allergic skin reaction.
- H319 - Causes serious eye irritation.
- H351 - Suspected of causing cancer.
- H373 - May cause damage to organs through prolonged or repeated exposure.
  (central nervous system (CNS), kidneys, liver)
- H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention:
- P202 - Do not handle until all safety precautions have been read and understood.
- P280 - Wear protective gloves, protective clothing and eye or face protection.
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P241 - Use explosion-proof electrical, ventilating or lighting equipment.
- P242 - Use non-sparking tools.
- P243 - Take action to prevent static discharges.
- P273 - Avoid release to the environment.
- P260 - Do not breathe vapor.
- P264 - Wash thoroughly after handling.

Response:
- P391 - Collect spillage.
- P308 + P313 - IF exposed or concerned: Get medical advice or attention.
- P362 + P364 - Take off contaminated clothing and wash it before reuse.
- P302 + P352 - IF ON SKIN: Wash with plenty of water.
- P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337 + P313 - If eye irritation persists: Get medical advice or attention.

Storage:
- P403 + P235 - Store in a well-ventilated place. Keep cool.

Disposal:
- P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

C. Other hazards which do not result in classification:
- Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients

CAS number/other identifiers:
- Not applicable.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name</th>
<th>Identifiers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talc, not containing asbestiform fibres</td>
<td>Talc, non-asbestos form</td>
<td>CAS: 14807-96-6</td>
<td>10 &lt;20</td>
</tr>
<tr>
<td>Xylenes</td>
<td>Bisphenol A diglycidyl ether</td>
<td>CAS: 1675-54-3</td>
<td>10 &lt;20</td>
</tr>
<tr>
<td>TITANIUM DIOXIDE</td>
<td>CAS: 1330-20-7</td>
<td>5 &lt;10</td>
<td></td>
</tr>
<tr>
<td>benzyl alcohol</td>
<td>BENZYL ALCOHOL</td>
<td>CAS: 100-51-6</td>
<td>1 &lt;5</td>
</tr>
<tr>
<td>Phenol, styrenated</td>
<td>PHENOLIC RESIN</td>
<td>CAS: 61788-44-1</td>
<td>1 &lt;5</td>
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<tr>
<td>1-methoxy-2-propanol</td>
<td>PROPYLENE GLYCOL MONOMETHYL ETHER</td>
<td>CAS: 107-98-2</td>
<td>1 &lt;5</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>ETHYLBENZENE</td>
<td>CAS: 100-41-4</td>
<td>1 &lt;5</td>
</tr>
</tbody>
</table>
Section 3. Composition/information on ingredients

| trizinc bis(orthophosphate) | ZINC ORTHOPHOSPHATE | CAS: 7779-90-0 | 0.1 - <1 |

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

A. Eye contact: Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.

B. Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.

C. Inhalation: Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

D. Ingestion: If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.

E. Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments: No specific treatment.
Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

A. Extinguishing media

Suitable extinguishing media: Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media: Do not use water jet.

B. Specific hazards arising from the chemical

Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products: Decomposition products may include the following materials: carbon oxides halogenated compounds metal oxide/oxides
Section 5. Fire-fighting measures

C. Special equipment for fire-fighting

Fire-fighting procedures: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Section 6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

B. Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

C. Methods and materials for containment and cleaning up

Small spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

A. Precautions for safe handling: Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
Section 7. Handling and storage

B. Conditions for safe storage, including any incompatibilities

Store between the following temperatures: 0 to 35°C (32 to 95°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

A. Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talc, not containing asbestiform fibres</td>
<td>Ministry of Employment and Labor (Republic of Korea, 1/2020). TWA: 2 mg/m³ 8 hours. Form: fibers</td>
<td>Ministry of Employment and Labor (Republic of Korea, 1/2020).</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>Ministry of Employment and Labor (Republic of Korea, 1/2020). TWA: 10 mg/m³ 8 hours. Form: total dust with less than 1% of free SiO2</td>
<td>Ministry of Employment and Labor (Republic of Korea, 1/2020).</td>
</tr>
</tbody>
</table>

Recommended monitoring procedures: Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

B. Appropriate engineering controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

C. Personal protective equipment
### Section 8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Protection</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Respiratory</strong></td>
<td>Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.</td>
</tr>
<tr>
<td><strong>Eye</strong></td>
<td>Chemical splash goggles.</td>
</tr>
<tr>
<td><strong>Hand</strong></td>
<td>Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.</td>
</tr>
<tr>
<td><strong>Body</strong></td>
<td>Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.</td>
</tr>
<tr>
<td><strong>Hygiene</strong></td>
<td>Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.</td>
</tr>
</tbody>
</table>

### Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Color</td>
<td>Gray.</td>
</tr>
<tr>
<td><strong>B. Odor</strong></td>
<td>Aromatic. [Slight]</td>
</tr>
<tr>
<td><strong>C. Odor threshold</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>D. pH</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>E. Melting/freezing point</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>F. Boiling point/boiling range</strong></td>
<td>&gt;37.78°C (&gt;100°F)</td>
</tr>
<tr>
<td><strong>G. Flash point</strong></td>
<td>Closed cup: 38°C (100.4°F)</td>
</tr>
<tr>
<td><strong>H. Evaporation rate</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>I. Flammability (solid, gas)</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>J. Lower and upper explosive (flammable) limits</strong></td>
<td>Greatest known range: Lower: 1.48% Upper: 13.74% (1-methoxy-2-propanol)</td>
</tr>
<tr>
<td><strong>K. Vapor pressure</strong></td>
<td></td>
</tr>
</tbody>
</table>
Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Vapor Pressure at 20°C</th>
<th>Vapor pressure at 50°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm Hg</td>
<td>kPa</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>9.30076</td>
<td>1.2</td>
</tr>
</tbody>
</table>

L. Solubility(ies)

- Solubility in water: Not available.
- Vapor density: Not available.
- Relative density: 1.7
- Partition coefficient: n-octanol/water: Not applicable.
- Auto-ignition temperature: Not applicable.

M. Decomposition temperature: Not available.

N. Viscosity

- Kinematic (room temperature): >400 mm²/s (>400 cSt)
- Kinematic (40°C (104°F)): >21 mm²/s (>21 cSt)

Q. Flow time (ISO 2431): Not available.

S. Molecular weight: Not available.

Section 10. Stability and reactivity

A. Chemical stability

- Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.
- The product is stable.

B. Conditions to avoid

- When exposed to high temperatures may produce hazardous decomposition products.

C. Incompatible materials

- Keep away from the following materials to prevent strong exothermic reactions: oxidizing agents, strong alkalis, strong acids.

D. Hazardous decomposition products

- Depending on conditions, decomposition products may include the following materials: carbon oxides halogenated compounds metal oxide/oxides
Section 11. Toxicological information

A. Information on the likely routes of exposure

**Potential acute health effects**

**Inhalation**
- No known significant effects or critical hazards.

**Ingestion**
- No known significant effects or critical hazards.

**Skin contact**
- Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.

**Eye contact**
- Causes serious eye irritation.

**Over-exposure signs/symptoms**

**Inhalation**
- No specific data.

**Ingestion**
- No specific data.

**Skin contact**
- Adverse symptoms may include the following:
  - irritation
  - redness
  - dryness
  - cracking

**Eye contact**
- Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness

B. Health hazards

**Acute toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxi)phenyl]propane</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>23000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>15000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Xylene</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>1.7 g/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>4.3 g/kg</td>
<td>-</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>LC50 Inhalation Dusts and mists</td>
<td>Rat</td>
<td>&gt;6.82 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>benzyl alcohol</td>
<td>LC50 Inhalation Dusts and mists</td>
<td>Rat</td>
<td>&gt;4178 mg/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>2000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>1.23 g/kg</td>
<td>-</td>
</tr>
<tr>
<td>Phenol, styrenated</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>&gt;5010 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>3550 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>1-methoxy-2-propanol</td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>&gt;7000 ppm</td>
<td>6 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>13 g/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>5.2 g/kg</td>
<td>-</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>17.8 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>17.8 g/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>3.5 g/kg</td>
<td>-</td>
</tr>
<tr>
<td>oxirane, mono[(C12-14-alkyloxy)methyl] derivs.</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>17100 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>trizinc bis(orthophosphate)</td>
<td>LC50 Inhalation Dusts and mists</td>
<td>Rat</td>
<td>&gt;5.7 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Conclusion/Summary**
- There are no data available on the mixture itself.
Section 11. Toxicological information

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Route of exposure</th>
<th>Species</th>
<th>Score</th>
<th>Score</th>
<th>Score</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxi)phenyl]propane</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eyes - Redness of the conjunctivae</td>
<td>Rabbit</td>
<td>0.4</td>
<td>24 hours</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Edema</td>
<td>Rabbit</td>
<td>0.5</td>
<td>4 hours</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Erythema/Eschar</td>
<td>Rabbit</td>
<td>0.8</td>
<td>4 hours</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>4 hours</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 mg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Xylene</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion/Summary**
- **Skin**: There are no data available on the mixture itself.
- **Eyes**: There are no data available on the mixture itself.
- **Respiratory**: There are no data available on the mixture itself.

Sensitization

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Route of exposure</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxi)phenyl]propane</td>
<td>skin</td>
<td>Mouse</td>
<td>Sensitizing</td>
</tr>
<tr>
<td>Phenol, styrenated oxirane, mono[C12-14-alkyloxy)methyl] derivs.</td>
<td>skin</td>
<td>Mouse</td>
<td>Sensitizing</td>
</tr>
<tr>
<td></td>
<td>skin</td>
<td>Guinea pig</td>
<td>Sensitizing</td>
</tr>
</tbody>
</table>

**Conclusion/Summary**
- **Skin**: There are no data available on the mixture itself.
- **Respiratory**: There are no data available on the mixture itself.

Mutagenicity

**Conclusion/Summary**: There are no data available on the mixture itself.

Carcinogenicity

**Conclusion/Summary**: There are no data available on the mixture itself.

Reproductive toxicity

**Conclusion/Summary**: There are no data available on the mixture itself.

Teratogenicity

**Conclusion/Summary**: There are no data available on the mixture itself.

Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Classification</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talc , not containing asbestiform fibres</td>
<td>Category 3</td>
<td>-</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Xylene</td>
<td>Category 3</td>
<td>-</td>
<td>Narcotic effects</td>
</tr>
<tr>
<td>1-methoxy-2-propanol</td>
<td>Category 3</td>
<td>-</td>
<td>Narcotic effects</td>
</tr>
</tbody>
</table>
Section 11. Toxicological information

Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Classification</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylene</td>
<td>Category 1</td>
<td>-</td>
<td>central nervous system (CNS), kidneys, liver</td>
</tr>
</tbody>
</table>

Aspiration hazard

<table>
<thead>
<tr>
<th>Name</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>benzyl alcohol</td>
<td>ASPIRATION HAZARD - Category 2</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
</tbody>
</table>

Potential chronic health effects

General: May cause damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity: No known significant effects or critical hazards.

Reproductive toxicity: No known significant effects or critical hazards.

Additional information

Prolonged or repeated contact may dry skin and cause irritation. Sanding and grinding dusts may be harmful if inhaled. Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. Avoid contact with skin and clothing.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Identifiers</th>
<th>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talc, not containing asbestiform fibres</td>
<td>CAS: 14807-96-6</td>
<td>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3</td>
</tr>
<tr>
<td>bis-[4-(2,3-epoxipropoxi)phenyl]propane</td>
<td>CAS: 1675-54-3</td>
<td>SKIN IRRITATION - Category 2, EYE IRRITATION - Category 2A, SKIN SENSITIZATION - Category 1B, AQUATIC HAZARD (LONG-TERM) - Category 2, FLAMMABLE LIQUIDS - Category 3, ACUTE TOXICITY (dermal) - Category 4, ACUTE TOXICITY (inhalation) - Category 4, SKIN IRRITATION - Category 2, EYE IRRITATION - Category 2A, SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3, SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1, CARCINOGENICITY - Category 2, ACUTE TOXICITY (oral) - Category 4, ACUTE TOXICITY (dermal) - Category 4</td>
</tr>
<tr>
<td>Xylene</td>
<td>CAS: 1330-20-7</td>
<td></td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>CAS: 13463-67-7</td>
<td></td>
</tr>
<tr>
<td>benzyl alcohol</td>
<td>CAS: 100-51-6</td>
<td></td>
</tr>
</tbody>
</table>
Section 11. Toxicological information

Phenol, styrenated
CAS: 61788-44-1
ACUTE TOXICITY (inhalation) - Category 4
EYE IRRITATION - Category 2A
ASPIRATION HAZARD - Category 2
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1B
1-methoxy-2-propanol
CAS: 107-98-2
ACQUATIC HAZARD (LONG-TERM) - Category 2
FLAMMABLE LIQUIDS - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
ethylbenzene
CAS: 100-41-4
FLAMMABLE LIQUIDS - Category 2
ACUTE TOXICITY (inhalation) - Category 4
CARCINOGENICITY - Category 2
ASPIRATION HAZARD - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 3
SKIN SENSITIZATION - Category 1B
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.
CAS: 68609-97-2
AQUATIC HAZARD (ACUTE) - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 1
trizinc bis(orthophosphate)
CAS: 7779-90-0
SKIN SENSITIZATION - Category 1B
AQUATIC HAZARD (ACUTE) - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 1

Section 12. Ecological information

A. Ecotoxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxi) phenyl]propane</td>
<td>Acute LC50 1.8 mg/l Fresh water</td>
<td>Daphnia - <em>daphnia magna</em></td>
<td>48 hours</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>Chronic NOEC 0.3 mg/l</td>
<td>Daphnia</td>
<td>21 days</td>
</tr>
<tr>
<td>Phenol, styrenated</td>
<td>Acute LC50 &gt;100 mg/l Fresh water</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td>1-methoxy-2-propanol</td>
<td>Acute EC50 3.8 mg/l</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>Acute LC50 23300 mg/l</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td>oxirane, mono[(C12-14-alkyloxy)methyl] derivs.</td>
<td>Acute LC50 &gt;4500 mg/l Fresh water</td>
<td>Daphnia</td>
<td>96 hours</td>
</tr>
<tr>
<td>trizinc bis(orthophosphate)</td>
<td>Acute LC50 0.112 mg/l</td>
<td>Fish</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 0.026 mg/l</td>
<td>Fish</td>
<td>30 days</td>
</tr>
</tbody>
</table>

B. Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol, styrenated</td>
<td>OECD 301F</td>
<td>7 % - Not readily - 28 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>-</td>
<td>79 % - Readily - 10 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>bis-[4-(2,3-epoxipropoxi) phenyl]propane</td>
<td>-</td>
<td>-</td>
<td>Not readily</td>
</tr>
<tr>
<td>Xylene</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
<tr>
<td>benzyl alcohol</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
<tr>
<td>Phenol, styrenated</td>
<td>-</td>
<td>-</td>
<td>Not readily</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>
Section 12. Ecological information

C. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Log(P_{ow})</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylene</td>
<td>3.12</td>
<td>7.4 to 18.5</td>
<td>Low</td>
</tr>
<tr>
<td>benzyl alcohol</td>
<td>0.87</td>
<td>-</td>
<td>Low</td>
</tr>
<tr>
<td>1-methoxy-2-propanol</td>
<td>&lt;1</td>
<td>-</td>
<td>Low</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>3.6</td>
<td>79.43</td>
<td>Low</td>
</tr>
<tr>
<td>oxirane, mono[ (C12-14-alkyloxy)methyl] derivs.</td>
<td>3.77</td>
<td>-</td>
<td>Low</td>
</tr>
</tbody>
</table>

D. Mobility in soil

Soil/water partition coefficient (\(K_{OC}\)) : Not available.

E. Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

A. Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

B. Disposal precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

<table>
<thead>
<tr>
<th>UN</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. UN number</td>
<td>UN1263</td>
<td>UN1263</td>
</tr>
<tr>
<td>B. UN proper shipping name</td>
<td>PAINT</td>
<td>PAINT</td>
</tr>
<tr>
<td>C. Transport hazard class(es)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>D. Packing group</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>Yes. The environmentally hazardous substance mark is not required.</td>
<td>Yes.</td>
</tr>
</tbody>
</table>
Section 14. Transport information

| E. Marine pollutant substances | Not applicable. | (bis-[4-(2,3-epoxipropoxy)phenyl]propane) | Not applicable. |

Additional information

UN : This class 3 viscous liquid that is also environmentally hazardous is not subject to regulation in packagings up to 5 L, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 according to 2.3.2.5.2.

IMDG : This class 3 viscous liquid that is also environmentally hazardous is not subject to regulation in packagings up to 5 L, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 according to 2.3.2.5.

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.

F. Special precaution which a user to be aware of or needs to comply with in connection with transport or transportation

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not applicable.

Section 15. Regulatory information

A. Regulation according to ISHA

ISHA article 117 (Harmful substances prohibited from manufacture) : None of the components are listed.

ISHA article 118 (Harmful substances requiring permission) : None of the components are listed.

Article 2 of Youth Protection Act on Substances Hazardous to Youth : It is not allowed to sell to persons under the age of 19.

Exposure Limits of Chemical Substances and Physical Factors

The following components have an OEL:
- Talc, not containing asbestiform fibres
- Xylene
titaniu.mdioxide
1-methoxy-2-propanol
ethylbenzene

ISHA Enforcement Regs Annex 19 (Exposure standards established for harmful factors) : None of the components are listed.
Section 15. Regulatory information

ISHA Enforcement Regs Annex 21 (Harmful factors subject to Work Environment Measurement): The following components are listed: talc / soapstone, xylene, titanium dioxide, ethyl benzene

ISHA Enforcement Regs Annex 22 (Harmful Factors Subject to Special Health Check-up): The following components are listed: Xylene, Ethyl benzene

Standard of Industrial Safety and Health Annex 12 (Hazardous substances subject to control): The following components are listed: xylene, titanium dioxide, ethyl benzene

B. Regulation according to Chemicals Control Act

Article 11 (TRI): The following components are listed: Xylene including o-,m-,p- isomer, Ethylbenzene

Article 18 Prohibited (K-Reach Article 27): None of the components are listed.

Article 19 Subject to authorization (K-Reach Article 25): None of the components are listed.

Article 20 Restricted (K-Reach Article 27): None of the components are listed.

Article 20 Toxic Chemicals (K-Reach Article 20): Not applicable

Korea inventory: All components are listed or exempted.

Article 39 (Accident Precaution Chemicals): None of the components are listed.

C. Dangerous Materials Safety Management Act

Class: Class 4 - Flammable Liquid
Item: 4. Class 2 petroleums - Water-insoluble liquid
Threshold: 1000 L
Danger category: III
Signal word: Contact with sources of ignition prohibited

D. Wastes regulation

Dispose of contents and container in accordance with all local, regional, national and international regulations.

E. Regulation according to other foreign laws

Safety, health and environmental regulations specific for the product: No known specific national and/or regional regulations applicable to this product (including its ingredients).
Section 16. Other information

A. References
   - Korean Ministry of Environment; Chemical Control Act
   - Korean Ministry of Labor; Industrial Safety and Health Act
   - NIER Notice
   - Registry of Toxic Effects of Chemical Substances (RTECS)
   - U.S. Environmental Protection Agency, AQUIRE (Aquatic toxicity Information Retrieval) ECOTOX Database System.

B. First issue date
   - 7/15/2024

C. Date of issue/Date of revision
   - 7/15/2024

D. Version
   - 1

E. Other
   - Prepared by: EHS

Disclaimer

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by PPG, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.
SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product name: SIGMAFAST 278 D HARDENER
Product code: 00478407
Other means of identification: Not applicable.
Product type: Liquid.

Relevant identified uses of the substance or mixture and uses advised against
Product use: Professional applications, Used by spraying.
Use of the substance/mixture: Coating.
Uses advised against: Not applicable.

Manufacturer: PPG Industries, Inc.
One PPG Place
Pittsburgh, PA 15272

Emergency telephone number:
(412) 434-4515 (U.S.)
(514) 645-1320 (Canada)
SETIQ Interior de la República: 800-00-214-00 (México)
SETIQ Ciudad de México: (55) 5559-1588 (México)

Technical Phone Number: 888-977-4762

SECTION 2: Hazards identification

Classification of the substance or mixture:
- FLAMMABLE LIQUIDS - Category 3
- ACUTE TOXICITY (oral) - Category 4
- ACUTE TOXICITY (dermal) - Category 4
- ACUTE TOXICITY (inhalation) - Category 4
- SKIN CORROSION - Category 1C
- SERIOUS EYE DAMAGE - Category 1
- SKIN SENSITIZATION - Category 1
- CARCINOGENICITY - Category 2
- SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
- SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

Percentage of the mixture consisting of ingredient(s) of unknown acute toxicity:
44.9% (oral), 46.7% (dermal), 54.4% (inhalation)

GHS label elements
SECTION 2: Hazards identification

Signal word : Danger

Hazard statements :
- H226 - Flammable liquid and vapor.
- H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.
- H314 - Causes severe skin burns and eye damage.
- H317 - May cause an allergic skin reaction.
- H351 - Suspected of causing cancer.
- H335 - May cause respiratory irritation.
- H337 - May cause damage to organs through prolonged or repeated exposure.
(hearing organs)

Precautionary statements

Prevention :
- P201 - Obtain special instructions before use.
- P202 - Do not handle until all safety precautions have been read and understood.
- P280 - Wear protective gloves, protective clothing and eye or face protection.
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P271 - Use only outdoors or in a well-ventilated area.
- P270 - Do not eat, drink or smoke when using this product.
- P272 - Contaminated work clothing should not be allowed out of the workplace.

Response :
- P308 + P313 - IF exposed or concerned: Get medical advice or attention.
- P304 + P340, P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.
- P301 + P310, P330, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353, P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or doctor.
- P363 - Wash contaminated clothing before reuse.
- P302 + P312, P352 - IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell. Wash with plenty of water.
- P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.
- P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

Storage :
- P405 - Store locked up.
- P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

Disposal :
- P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification :
DANGER - RAGS, STEEL WOOL OR WASTE SOAKED WITH THIS PRODUCT MAY SPONTANEOUSLY CATCH FIRE IF IMPROPERLY DISCARDED. IMMEDIATELY AFTER EACH USE, PLACE RAGS, STEEL WOOL OR WASTE IN A SEALED WATER-FILLED METAL CONTAINER. Causes digestive tract burns. Prolonged or repeated contact may dry skin and cause irritation. Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. Emits toxic fumes when heated.
SECTION 2: Hazards identification

See toxicological information (Section 11)

SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Product name: SIGMAFAST 278 D HARDENER</th>
<th>Other means of identification</th>
<th>Ingredient name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixture</td>
<td></td>
<td>Not applicable.</td>
<td>Polyaminoamide</td>
<td>≥20 - ≤50</td>
<td>68082-29-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Amides, from C18-unsatd. fatty acid dimers, tall-oil fatty acids and triethylenetetramine, reaction products with bisphenol A-epichlorohydrin polymer</td>
<td>≥10 - ≤20</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>xylene</td>
<td>≥10 - ≤20</td>
<td>1330-20-7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2-methylpropan-1-ol</td>
<td>≥10 - &lt;20</td>
<td>78-83-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>benzyl alcohol</td>
<td>≥10 - ≤20</td>
<td>100-51-6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2,4,6-tris(dimethylaminomethyl)phenol</td>
<td>≥1.0 - ≤5.0</td>
<td>90-72-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3,6-diazaoctanethylenediamin</td>
<td>≥1.0 - &lt;5.0</td>
<td>112-24-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ethylbenzene</td>
<td>≥1.0 - ≤4.0</td>
<td>100-41-4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Formaldehyde, polymer with N,N-dimethyl-1,3-propanediamine and phenol</td>
<td>≥1.0 - ≤5.0</td>
<td>445498-00-0</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

Description of necessary first aid measures

Eye contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.

Inhalation: Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.

Ingestion: If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact: Causes serious eye damage.

Inhalation: Harmful if inhaled. May cause respiratory irritation.

Skin contact: Causes severe burns. Harmful in contact with skin. Defatting to the skin. May cause an allergic skin reaction.

Ingestion: Harmful if swallowed. Corrosive to the digestive tract. Causes burns.

See toxicological information (Section 11)
SECTION 4: First aid measures

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician:
In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments:
No specific treatment.

Protection of first-aiders:
No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media:
Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media:
Do not use water jet.

Specific hazards arising from the chemical:
Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products:
Decomposition products may include the following materials:
carbon oxides
nitrogen oxides
halogenated compounds

Special protective actions for fire-fighters:
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters:
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:
No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders:
If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions:
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up
SECTION 6: Accidental release measures

Small spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

SECTION 7: Handling and storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Special precautions: Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Vapors are heavier than air and may spread along floors. Materials such as cleaning rags, paper wipes and protective clothing, which are contaminated with the product may spontaneously self-ignite some hours later. To avoid the risks of fires, all contaminated materials should be stored in purpose-built containers or in metal containers with tight-fitting, self-closing lids. Contaminated materials should be removed from the workplace at the end of each working day and be stored outside. If this material is part of a multiple component system, read the Safety Data Sheet(s) for the other component or components before blending as the resulting mixture may have the hazards of all of its parts.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store between the following temperatures: 0 to 35°C (32 to 95°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental
SECTION 7: Handling and storage

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyaminoamide</td>
<td>None.</td>
</tr>
<tr>
<td>Amides, from C18-unsatd. fatty acid dimers, tall-oil fatty acids and triethyleneetetramine, reaction products with bisphenol A-epichlorohydrin polymer</td>
<td>None.</td>
</tr>
<tr>
<td>xylene</td>
<td>NOM-010-STPS-2014 (Mexico, 4/2016). STEL: 150 ppm 15 minutes. TWA: 100 ppm 8 hours.</td>
</tr>
<tr>
<td>2-methylpropan-1-ol</td>
<td>None.</td>
</tr>
<tr>
<td>benzyl alcohol</td>
<td>NOM-010-STPS-2014 (Mexico, 4/2016). TWA: 50 ppm 8 hours. IPEL (-). TWA: 5 ppm STEL: 10 ppm</td>
</tr>
<tr>
<td>2,4,6-tris(dimethylaminomethyl)phenol</td>
<td>None.</td>
</tr>
<tr>
<td>3,6-diazaoctanethylenediamin</td>
<td>IPEL (-). Absorbed through skin. TWA: 1 ppm</td>
</tr>
<tr>
<td>Formaldehyde, polymer with N,N-dimethyl-1,3-propanediamine and phenol</td>
<td>None.</td>
</tr>
</tbody>
</table>

Key to abbreviations

C = Ceiling Limit
IPEL = Internal Permissible Exposure Limit
TLV = Threshold Limit Value
TWA = Time Weighted Average
STEL = Short term exposure limit

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures:
Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Appropriate engineering controls:
Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls:
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures:
Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
SECTION 8: Exposure controls/personal protection

Eye/face protection: Chemical splash goggles and face shield.

Skin protection
Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Gloves: nitrile neoprene

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

SECTION 9: Physical and chemical properties

Appearance
Physical state: Liquid.
Color: Amber.
Odor: Amine-like.
Odor threshold: Not available.
Molecular weight: Not applicable.
pH: Not applicable.
Melting point: Not available.
Boiling point: >37.78°C (>100°F)
Flash point: Closed cup: 29°C (84.2°F)
Auto-ignition temperature: Not available.
Decomposition temperature: Not available.
Flammability: Not available.
Lower and upper explosive (flammable) limits: Not available.
Evaporation rate: Not available.
Vapor pressure: Not available.
Vapor density: Not available.
Relative density: 0.96
Density (lbs / gal): 8.01

Solubility(ies)
<table>
<thead>
<tr>
<th>Media</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>cold water</td>
<td>Not soluble</td>
</tr>
</tbody>
</table>
SECTION 9: Physical and chemical properties

Solubility in water : Not available.
Partition coefficient: n-octanol/water : Not applicable.
Viscosity : Kinematic (40°C (104°F)): >21 mm²/s (>21 cSt)
Volatility : 49% (v/v), 44.9% (w/w)
% Solid. (w/w) : 55.1

SECTION 10: Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.
Chemical stability : The product is stable.
Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid : When exposed to high temperatures may produce hazardous decomposition products. Refer to protective measures listed in sections 7 and 8.
Incompatible materials : Keep away from the following materials to prevent strong exothermic reactions: oxidizing agents, strong alkalis, strong acids.
Hazardous decomposition products : Depending on conditions, decomposition products may include the following materials: carbon oxides nitrogen oxides halogenated compounds

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>1.7 g/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>4.3 g/kg</td>
<td>-</td>
</tr>
<tr>
<td>2-methylpropan-1-ol</td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>24.6 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>2460 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2830 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>benzyl alcohol</td>
<td>LC50 Inhalation Dusts and mists</td>
<td>Rat</td>
<td>&gt;4178 mg/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>2000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>1.23 g/kg</td>
<td>-</td>
</tr>
<tr>
<td>2,4,6-tris (dimethylaminomethyl) phenol</td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>1280 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>3,6-diazaoctanethylenediamin</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>1200 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>17.8 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>17.8 g/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>3.5 g/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Conclusion/Summary

Irritation/Corrosion : There are no data available on the mixture itself.
SECTION 11: Toxicological information

### Carcinogenicity

**Conclusion/Summary**: There are no data available on the mixture itself.

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Route of exposure</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,6-diazaoctanethylenediamin</td>
<td>skin</td>
<td>Guinea pig</td>
<td>Sensitizing</td>
</tr>
</tbody>
</table>

**Skin**

**Eyes**

**Respiratory**

### Mutagenicity

**Conclusion/Summary**: There are no data available on the mixture itself.

### Sensitization

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Route of exposure</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Skin**

**Eyes**

**Respiratory**

### Reproductive toxicity

**Conclusion/Summary**: There are no data available on the mixture itself.

### Teratogenicity

**Conclusion/Summary**: There are no data available on the mixture itself.

### Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amides, from C18-unsatd. fatty acid dimers, tall-oil fatty acids and triethylenetetramine, reaction products with bisphenol A-epichlorohydrin polymer xylene</td>
<td>Category 3</td>
<td>-</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>2-methylpropan-1-ol</td>
<td>Category 3</td>
<td>-</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

### Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amides, from C18-unsatd. fatty acid dimers, tall-oil fatty acids and triethylenetetramine, reaction products with bisphenol A-epichlorohydrin polymer xylene</td>
<td>Category 3</td>
<td>-</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>2-methylpropan-1-ol</td>
<td>Category 3</td>
<td>-</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>
SECTION 11: Toxicological information

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethylbenzene</td>
<td>Category 2</td>
<td>-</td>
<td>hearing organs</td>
</tr>
</tbody>
</table>

**Target organs**

- Contains material which causes damage to the following organs: blood, liver, heart, brain.
- Contains material which may cause damage to the following organs: kidneys, lungs, the nervous system, upper respiratory tract, skin, central nervous system (CNS), ears, eye, lens or cornea.

**Aspiration hazard**

<table>
<thead>
<tr>
<th>Name</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
<tr>
<td>2-methylpropan-1-ol</td>
<td>ASPIRATION HAZARD - Category 2</td>
</tr>
<tr>
<td>benzyl alcohol</td>
<td>ASPIRATION HAZARD - Category 2</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
</tbody>
</table>

**Information on the likely routes of exposure**

**Potential acute health effects**

**Eye contact**
- Causes serious eye damage.

**Inhalation**
- Harmful if inhaled. May cause respiratory irritation.

**Skin contact**
- Causes severe burns. Harmful in contact with skin. Defatting to the skin. May cause an allergic skin reaction.

**Ingestion**
- Harmful if swallowed. Corrosive to the digestive tract. Causes burns.

**Over-exposure signs/symptoms**

**Eye contact**
- Adverse symptoms may include the following:
  - pain
  - watering
  - redness

**Inhalation**
- Adverse symptoms may include the following:
  - respiratory tract irritation
  - coughing

**Skin contact**
- Adverse symptoms may include the following:
  - pain or irritation
  - redness
  - dryness
  - cracking
  - blistering may occur

**Ingestion**
- Adverse symptoms may include the following:
  - stomach pains

**Delayed and immediate effects and also chronic effects from short and long term exposure**

**Conclusion/Summary**
- There are no data available on the mixture itself. Exposure to component solvent vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin. There is some evidence that repeated exposure to organic solvent vapors in combination with constant loud noise can cause greater hearing loss than expected from exposure to noise alone. If splashed in the eyes, the liquid may cause irritation and reversible damage. Ingestion may cause nausea, diarrhea and vomiting. This takes into account, where...
SECTION 11: Toxicological information

known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact. Exposure to amine vapor has been reported to cause transient corneal edema described as blue haze, halo effect, foggy or blurred vision for several hours. This condition is typically temporary and does not cause permanent visual effects. When the proper eye protection specified in Section 8 is worn, exposure is significantly reduced and the condition has not been observed.

Short term exposure

Potential immediate effects: There are no data available on the mixture itself.
Potential delayed effects: There are no data available on the mixture itself.

Long term exposure

Potential immediate effects: There are no data available on the mixture itself.
Potential delayed effects: There are no data available on the mixture itself.

Potential chronic health effects

General: May cause damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity: No known significant effects or critical hazards.

Reproductive toxicity: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Oral (mg/kg)</th>
<th>Dermal (mg/kg)</th>
<th>Inhalation (gases) (ppm)</th>
<th>Inhalation (vapors) (mg/l)</th>
<th>Inhalation (dusts and mists) (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIGMAFAST 278 D HARDENER</td>
<td>1911.3</td>
<td>1989.5</td>
<td>N/A</td>
<td>29.4</td>
<td>2.2</td>
</tr>
<tr>
<td>xylenes</td>
<td>4300</td>
<td>1700</td>
<td>N/A</td>
<td>11</td>
<td>1.5</td>
</tr>
<tr>
<td>2-methylpropan-1-ol</td>
<td>2830</td>
<td>2480</td>
<td>N/A</td>
<td>24.6</td>
<td>N/A</td>
</tr>
<tr>
<td>benzyl alcohol</td>
<td>1230</td>
<td>2000</td>
<td>N/A</td>
<td>N/A</td>
<td>1.5</td>
</tr>
<tr>
<td>2,4,6-tris(dimethylaminomethyl)phenol</td>
<td>1200</td>
<td>1280</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>3,6-diazaoctanethylenediamin</td>
<td>1716</td>
<td>1465</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>3500</td>
<td>17800</td>
<td>N/A</td>
<td>17.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Formaldehyde, polymer with N,N-dimethyl-1,3-propanediamine and phenol</td>
<td>500</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SECTION 12: Ecological information

Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-methylpropan-1-ol</td>
<td>Acute EC50 1100 mg/l</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td>2,4,6-tris(dimethylaminomethyl)phenol</td>
<td>Acute LC50 &gt;100 mg/l</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>Acute LC50 &gt;100 mg/l</td>
<td>Fish</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 1.8 mg/l Fresh water</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 1 mg/l Fresh water</td>
<td>Daphnia - Ceriodaphnia dubia</td>
<td>-</td>
</tr>
</tbody>
</table>
SECTION 12: Ecological information

Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4,6-tris (dimethylaminomethyl)phenol ethylbenzene</td>
<td>OECD 301D Ready Biodegradability - Closed Bottle Test</td>
<td>4 % - Not readily - 28 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>xylene</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>benzyl alcohol</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2,4,6-tris (dimethylaminomethyl)phenol ethylbenzene</td>
<td>-</td>
<td>79 % - Readily - 10 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP_{ow}</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>3.12</td>
<td>7.4 to 18.5</td>
<td>Low</td>
</tr>
<tr>
<td>2-methylpropan-1-ol</td>
<td>1</td>
<td>-</td>
<td>Low</td>
</tr>
<tr>
<td>benzyl alcohol</td>
<td>0.87</td>
<td>-</td>
<td>Low</td>
</tr>
<tr>
<td>2,4,6-tris (dimethylaminomethyl)phenol ethylbenzene</td>
<td>0.219</td>
<td>-</td>
<td>Low</td>
</tr>
<tr>
<td>3,6-diazaoctanethylenediamin</td>
<td>-1.66 to -1.4</td>
<td>79.43</td>
<td>Low</td>
</tr>
</tbody>
</table>

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.
SECTION 13: Disposal considerations

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Section 6. Accidental release measures

SECTION 14: Transport information

<table>
<thead>
<tr>
<th>UN number</th>
<th>Mexico Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN3469</td>
<td>PAINT, FLAMMABLE, CORROSIVE</td>
<td>PAINT, FLAMMABLE, CORROSIVE</td>
<td>PAINT, FLAMMABLE, CORROSIVE</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>3 (8)</td>
<td>3 (8)</td>
<td>3 (8)</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Marine pollutant substances</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Product RQ (lbs)</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>RQ substances</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

Additional information

Mexico : None identified.
IMDG : None identified.
IATA : None identified.

Special precautions for user

Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

Mexico

Classification
- Flammability : 3
- Health : 3
- Reactivity : 0

International regulations

Montreal Protocol
Not listed.

Stockholm Convention on Persistent Organic Pollutants
Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)
SECTION 15: Regulatory information

Not listed.

SECTION 16: Other information

Hazardous Material Information System (U.S.A.)

Health : 3  
* Flammability : 3  
Physical hazards : 0

( * ) - Chronic effects

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

Date of previous issue : No previous validation
Organization that prepared the SDS : EHS

Key to abbreviations : ATP = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
N/A = Not available
SGG = Segregation Group
UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

The information, which is based on the current knowledge of the chemical substance or mixture and applies to appropriate safety precautions for the product, is deemed correct but is not exhaustive and will be used only as a guide.

Disclaimer

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by PPG, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.
<table>
<thead>
<tr>
<th>MSDS No.</th>
<th>Individual Component Used During Blade Manufacture</th>
<th>Is PFAS Present?</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>SIGMADUR 520 BASE RAL 7035</td>
<td>No</td>
</tr>
<tr>
<td>19</td>
<td>SIGMADUR 520 HARDNER</td>
<td>No</td>
</tr>
<tr>
<td>20</td>
<td>INTERZINC 697 HARDENER</td>
<td>No</td>
</tr>
<tr>
<td>21</td>
<td>INTERZINC 697 BASE</td>
<td>No</td>
</tr>
<tr>
<td>22</td>
<td>LOCTITE SF 7090 1 LITRE BOTTLE</td>
<td>No</td>
</tr>
<tr>
<td>23</td>
<td>WAX SOLUTION</td>
<td>No</td>
</tr>
<tr>
<td>24</td>
<td>POLYMER PUR-HYBRID 1-C GREY 600ML</td>
<td>No</td>
</tr>
<tr>
<td>25</td>
<td>ISOCYANATE TYPE A BALANCING MATERIAL</td>
<td>No</td>
</tr>
<tr>
<td>26</td>
<td>POLYOL TYPE A BALANCING MATERIAL</td>
<td>No</td>
</tr>
<tr>
<td>27</td>
<td>ADHESIVE MMA GT35 400ML</td>
<td>No</td>
</tr>
<tr>
<td>28</td>
<td>PEROXIDE M-50 A</td>
<td>No</td>
</tr>
<tr>
<td>29</td>
<td>ADHESIVE MMA GT2 490ML</td>
<td>No</td>
</tr>
<tr>
<td>30</td>
<td>Primer Pur 1-C 250 ml</td>
<td>No</td>
</tr>
<tr>
<td>31</td>
<td>PEROXIDE VE CAT HH VR</td>
<td>No</td>
</tr>
<tr>
<td>32</td>
<td>ADHESIVE MMA GT12 490ML</td>
<td>No</td>
</tr>
<tr>
<td>33</td>
<td>PEROXIDE UP CAT FF VR 25/30 KG</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MSDS No.</th>
<th>Aerodynamic Add-On Component (not part of blade construction)</th>
<th>Is PFAS Present?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VHB tape 5962</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>EXL 9134 (contains 0.3 % by weight PTFE, a subgroup of PFAS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Category</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-----------------------------------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>Blade resin</td>
<td>POLYESTER VARTM TYPE B GT175</td>
<td>PEROXIDE VE CAT WW RED</td>
</tr>
<tr>
<td>Web resin</td>
<td>POLYESTER VARTM TYPE B GT100</td>
<td>PEROXIDE UP CAT FF VR 25/30 KG</td>
</tr>
<tr>
<td>Resin Hand lay-up</td>
<td>POLYESTER HAND LAY-UP GT80</td>
<td>PEROXIDE M-50 A</td>
</tr>
<tr>
<td>Adhesive for blade/Web/ third web &amp; C stiffner (closing process)</td>
<td>VINYL ESTER VARTM TYPE H GT150</td>
<td>PEROXIDE VE CAT WW RED</td>
</tr>
<tr>
<td>Epoxy VARTM Resin</td>
<td>EPOXY VARTM RESIN EPIKOTE RIMR135</td>
<td>EPOXY VARTM HARDENER EPICURE RIMH1366</td>
</tr>
<tr>
<td>Resin Spar cap</td>
<td>VINYL ESTER VARTM TYPE H GT150</td>
<td>PEROXIDE VE CAT HH VR</td>
</tr>
<tr>
<td>Gelcoat spray</td>
<td>GELCOAT HY TYPE D SPRAY RAL7035</td>
<td>PEROXIDE UP CAT AA 25/30KG</td>
</tr>
<tr>
<td>Gelcoat brush</td>
<td>GELCOAT UP TYPE A BRUSH RAL 7035</td>
<td>PEROXIDE M-50A</td>
</tr>
<tr>
<td>Balancing materials</td>
<td>POLYOL TYPE A BALANCING MATERIAL</td>
<td>ISOCYANATE TYPE A BALANCING MATERIAL</td>
</tr>
<tr>
<td>Sigmafast 278</td>
<td>SIGMAFAST 278 BASE</td>
<td>SIGMAFAST 278 HARDNER</td>
</tr>
<tr>
<td>INTERZINC 697</td>
<td>INTERZINC 697  BASE</td>
<td>INTERZINC 697  HARDNER</td>
</tr>
<tr>
<td>Sigmadur 520</td>
<td>SIGMADUR 520 BASE RAL 7035</td>
<td>SIGMADUR 520 HARDNER</td>
</tr>
<tr>
<td>Top coat 12</td>
<td>TOPCOAT 12 RAL 9004 NON-CONDUCTIVE</td>
<td>TOPCOAT 12 HARDENER</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

Date of issue/Date of revision  10 June 2024  Version: 4.08

Section 1. Identification

Product code : 00110455
Product name : SIGMADUR 520 BASE RAL 7035
CAS number : Not applicable.
EC number : Mixture.
Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Product use : Coating.
Professional applications, Used by spraying.

Uses advised against : Product is not intended, labelled or packaged for consumer use.

Supplier's details : PPG Yung Chi Coatings Co. Ltd
Lot 219, Amata Street, Long Binh IZ
Bien Hoa City, Dong Nai Province
Vietnam
Tel : +84 61 3936121/22

Emergency telephone number (with hours of operation) : CHEMTREC +(84)-444581938 (CCN 17704)

Section 2. Hazards identification

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
ACUTE TOXICITY (dermal) - Category 5
ACUTE TOXICITY (inhalation) - Category 4
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
AQUATIC TOXICITY (ACUTE) - Category 3
AQUATIC TOXICITY (CHRONIC) - Category 3

Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 14.7%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 36.1%
Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 26.2%

GHS label elements

Hazard pictograms :  

Signal word : Warning
Section 2. Hazards identification

**Hazard statements**
- Flammable liquid and vapor.
- May be harmful in contact with skin.
- Causes skin irritation.
- May cause an allergic skin reaction.
- Causes serious eye irritation.
- Harmful if inhaled.
- May cause respiratory irritation.
- Harmful to aquatic life with long lasting effects.

**Precautionary statements**

**Prevention**
- Wear protective gloves, protective clothing and eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing vapor. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

**Response**
- IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell. Wash with plenty of water. IF skin irritation or rash occurs: Get medical advice or attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

**Storage**
- Store locked up. Store in a well-ventilated place. Keep container tightly closed.

**Disposal**
- Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Routes of entry**
- Not available.

**Other hazards which do not result in classification**
- Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients

**Substance/mixture**
- Mixture

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>CAS number</th>
<th>Chemical formula</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium sulfate</td>
<td>7727-43-7</td>
<td>O4-S.Ba</td>
<td>≥10 - ≤25</td>
</tr>
<tr>
<td>xylene</td>
<td>1330-20-7</td>
<td>C8-H10</td>
<td>≥10 - ≤25</td>
</tr>
<tr>
<td>Talc, not containing asbestiform fibres</td>
<td>14807-96-6</td>
<td>H2-03-Si.3/4Mg</td>
<td>≤10</td>
</tr>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>64742-95-6</td>
<td>-</td>
<td>≤10</td>
</tr>
<tr>
<td>1,2,4-trimethylbenzene</td>
<td>95-63-6</td>
<td>C9-H12</td>
<td>≤5</td>
</tr>
<tr>
<td>2-methoxy-1-methylethyl acetate</td>
<td>108-65-6</td>
<td>C6-H12-O3</td>
<td>≤5</td>
</tr>
<tr>
<td>3-ethyltoluene</td>
<td>620-14-4</td>
<td>C9-H12</td>
<td>≤5</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>100-41-4</td>
<td>C8-H10</td>
<td>≤3</td>
</tr>
<tr>
<td>Octadecanamide, N,N'-1,6-hexanediylbis[12-hydroxy-bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate</td>
<td>55349-01-4</td>
<td>C42H84N2O4</td>
<td>≤3</td>
</tr>
<tr>
<td></td>
<td>41556-26-7</td>
<td>C30H56N2O4</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

SUB codes represent substances without registered CAS Numbers.
Section 3. Composition/information on ingredients

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

**Eye contact**: Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.

**Inhalation**: Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

**Skin contact**: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.

**Ingestion**: If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.

Most important symptoms/effects, acute and delayed

**Potential acute health effects**

**Eye contact**: Causes serious eye irritation.

**Inhalation**: Harmful if inhaled. May cause respiratory irritation.

**Skin contact**: May be harmful in contact with skin. Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.

**Ingestion**: No known significant effects or critical hazards.

**Over-exposure signs/symptoms**

**Eye contact**: Adverse symptoms may include the following:
- pain or irritation
- watering
- redness

**Inhalation**: Adverse symptoms may include the following:
- respiratory tract irritation
- coughing

**Skin contact**: Adverse symptoms may include the following:
- irritation
- redness
- dryness
- cracking

**Ingestion**: No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

**Notes to physician**: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Specific treatments**: No specific treatment.

**Protection of first-aiders**: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)
Section 5. Fire-fighting measures

**Extinguishing media**
- Suitable extinguishing media: Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media: Do not use water jet.

**Specific hazards arising from the chemical**
- Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

**Hazardous thermal decomposition products**
- Decomposition products may include the following materials:
  - carbon oxides
  - nitrogen oxides
  - sulfur oxides
  - metal oxide/oxides

**Special protective actions for fire-fighters**
- Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for fire-fighters**
- Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
- For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

- For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions**
- Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

**Methods and materials for containment and cleaning up**
- Small spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Section 6. Accidental release measures

**Large spill**

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

**Precautions for safe handling**

**Protective measures**

Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene**

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**Conditions for safe storage, including any incompatibilities**

Store between the following temperatures: 0 to 35°C (32 to 95°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

**Control parameters**

**Occupational exposure limits**

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium sulfate</td>
<td>ACGIH TLV (United States, 7/2023). TWA: 5 mg/m³ 8 hours. Form: Inhalable fraction</td>
</tr>
<tr>
<td>xylene</td>
<td>Ministry of Health (Viet Nam, 6/2019). [xylene] STEL: 300 mg/m³ 15 minutes. TWA: 100 mg/m³ 8 hours.</td>
</tr>
<tr>
<td>Talc, not containing asbestiform fibres</td>
<td>Ministry of Health (Viet Nam, 6/2019).</td>
</tr>
</tbody>
</table>
# Section 8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Substance</th>
<th>TWA</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,4-trimethylbenzene</td>
<td>3 mg/m³ 8 hours</td>
<td>inhalable dust</td>
</tr>
<tr>
<td></td>
<td>1 mg/m³ 8 hours</td>
<td>respirable dust</td>
</tr>
<tr>
<td></td>
<td>2 mg/m³ 8 hours</td>
<td>total dust concentration</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>10 ppm 8 hours</td>
<td>ACGIH TLV (United States, 7/2023)</td>
</tr>
<tr>
<td></td>
<td>20 ppm 8 hours</td>
<td>Ototoxicant. TWA: 20 ppm 8 hours.</td>
</tr>
</tbody>
</table>

### Recommended monitoring procedures
Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

### Appropriate engineering controls
Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

### Environmental exposure controls
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

#### Hygiene measures
Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Eye/face protection
Chemical splash goggles.

#### Skin protection

##### Hand protection
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

- **Gloves**: butyl rubber

##### Body protection
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

- **Body protection**: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Section 8. Exposure controls/personal protection

Respiratory protection: Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

Section 9. Physical and chemical properties

Appearance

Physical state: Liquid.
Color: Gray.
Odor: Characteristic.
Odor threshold: Not available.
pH: Not applicable.
Melting point: Not available.
Boiling point: >37.78°C (>100°F)
Flash point: Not available.
Evaporation rate: Not available.
Flammability (solid, gas): Not applicable.
Lower and upper explosive (flammable) limits: Greatest known range: Lower: 1.4% Upper: 7.6% (Solvent naphtha (petroleum), light aromatic)
Vapor pressure: Not available.
Vapor density: Not available.
Relative density: 1.38

Solubility(ies):

<table>
<thead>
<tr>
<th>Media</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>cold water</td>
<td>Not soluble</td>
</tr>
</tbody>
</table>

Partition coefficient: n-octanol/water: Not applicable.
Auto-ignition temperature: Not available.
Decomposition temperature: Not available.
Viscosity: Kinematic (room temperature): >400 mm²/s
Kinematic (40°C): >21 mm²/s
Viscosity: 60 - 100 s (ISO 6mm)

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability: The product is stable.
Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid: When exposed to high temperatures may produce hazardous decomposition products.
Section 10. Stability and reactivity

Incompatible materials: Keep away from the following materials to prevent strong exothermic reactions: oxidizing agents, strong alkalis, strong acids.

Hazardous decomposition products: Depending on conditions, decomposition products may include the following materials: carbon oxides nitrogen oxides sulfur oxides metal oxide/oxides

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium sulfate</td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>&gt;2000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>xylene</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>1.7 g/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>4.3 g/kg</td>
<td>-</td>
</tr>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>3.48 g/kg</td>
<td>-</td>
</tr>
<tr>
<td>1,2,4-trimethylbenzene</td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>8400 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>18000 mg/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td>2-methoxy-1-methylethyl acetate</td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>5 g/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>30 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>&gt;5 g/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>6190 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate</td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>17.8 g/kg</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>17.8 g/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>3.5 g/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>3.125 g/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Conclusion/Summary: There are no data available on the mixture itself.

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 mg</td>
<td>-</td>
</tr>
</tbody>
</table>

Conclusion/Summary

Skin: There are no data available on the mixture itself.
Eyes: There are no data available on the mixture itself.
Respiratory: There are no data available on the mixture itself.

Sensitization

Skin: There are no data available on the mixture itself.
Respiratory: There are no data available on the mixture itself.

Mutagenicity

Conclusion/Summary: There are no data available on the mixture itself.

Carcinogenicity

Conclusion/Summary: There are no data available on the mixture itself.

Reproductive toxicity

Conclusion/Summary: There are no data available on the mixture itself.

Teratogenicity

Conclusion/Summary: There are no data available on the mixture itself.
Section 11. Toxicological information

Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylene</td>
<td>Category 3</td>
<td>-</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Talc , not containing asbestiform fibres</td>
<td>Category 3</td>
<td>-</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>Category 3</td>
<td>-</td>
<td>Narcotic effects</td>
</tr>
<tr>
<td>1,2,4-trimethylbenzene</td>
<td>Category 3</td>
<td>-</td>
<td>Narcotic effects</td>
</tr>
<tr>
<td>2-methoxy-1-methylethyl acetate</td>
<td>Category 3</td>
<td>-</td>
<td>Narcotic effects</td>
</tr>
</tbody>
</table>

Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethylbenzene</td>
<td>Category 2</td>
<td>-</td>
<td>hearing organs</td>
</tr>
</tbody>
</table>

Aspiration hazard

<table>
<thead>
<tr>
<th>Name</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
<tr>
<td>3-ethyltoluene</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
</tbody>
</table>

Information on the likely routes of exposure

Potential acute health effects

Eye contact : Causes serious eye irritation.
Inhalation : Harmful if inhaled. May cause respiratory irritation.
Skin contact : May be harmful in contact with skin. Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact : Adverse symptoms may include the following:
irritation
redness
dryness
cracking

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure
Section 11. Toxicological information

Potential immediate effects: There are no data available on the mixture itself.
Potential delayed effects: There are no data available on the mixture itself.
Long term exposure: There are no data available on the mixture itself.
Potential immediate effects: There are no data available on the mixture itself.
Potential delayed effects: There are no data available on the mixture itself.
Potential chronic health effects:
General: Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Reproductive toxicity: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>21862.5 mg/kg</td>
</tr>
<tr>
<td>Dermal</td>
<td>4923.44 mg/kg</td>
</tr>
<tr>
<td>Inhalation (vapors)</td>
<td>40.85 mg/l</td>
</tr>
<tr>
<td>Inhalation (dusts and mists)</td>
<td>4.87 mg/l</td>
</tr>
</tbody>
</table>

Other information:
Prolonged or repeated contact may dry skin and cause irritation. Sanding and grinding dusts may be harmful if inhaled. Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. Avoid contact with skin and clothing.

Section 12. Ecological information

Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>Acute LC50 8.2 mg/l</td>
<td>Fish</td>
<td>96 hours</td>
</tr>
<tr>
<td>2-methoxy-1-methylethyl acetate</td>
<td>Acute LC50 134 mg/l</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>Acute EC50 1.8 mg/l</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 1 mg/l</td>
<td>Daphnia - Ceriodaphnia dubia</td>
<td>-</td>
</tr>
</tbody>
</table>

Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-methoxy-1-methylethyl acetate ethylbenzene</td>
<td>-</td>
<td>83 % - Readily - 28 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>79 % - Readily - 10 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Section 12. Ecological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
<tr>
<td>2-methoxy-1-methylethyl acetate</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>

**Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>3.12</td>
<td>7.4 to 18.5</td>
<td>Low</td>
</tr>
<tr>
<td>1,2,4-trimethylbenzene</td>
<td>3.63</td>
<td>120.23</td>
<td>Low</td>
</tr>
<tr>
<td>2-methoxy-1-methylethyl acetate</td>
<td>1.2</td>
<td>-</td>
<td>Low</td>
</tr>
<tr>
<td>3-ethyltoluene</td>
<td>3.98</td>
<td>-</td>
<td>Low</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>3.6</td>
<td>79.43</td>
<td>Low</td>
</tr>
</tbody>
</table>

**Mobility in soil**

| Soil/water partition coefficient (K<sub>oc</sub>) | Not available. |

**Other adverse effects**

: No known significant effects or critical hazards.

Section 13. Disposal considerations

**Disposal methods**

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

<table>
<thead>
<tr>
<th></th>
<th>UN</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN1263</td>
<td>UN1263</td>
<td>UN1263</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>PAINT</td>
<td>PAINT</td>
<td>PAINT</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
</tbody>
</table>
Section 14. Transport information

Marine pollutant substances | Not applicable. | Not applicable. | Not applicable.

Additional information

UN : This class 3 viscous liquid is not subject to regulation in packagings up to 450 L according to 2.3.2.5.1.
IMDG : This class 3 viscous liquid is not subject to regulation in packagings up to 450 L according to 2.3.2.5.
IATA : None identified.

Special precautions for user : Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not applicable.

Section 15. Regulatory information

Safety, health and environmental regulations specific for the product : No known specific national and/or regional regulations applicable to this product (including its ingredients).

Circular no. 05/1999/TT-BYT

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Category</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>benzene</td>
<td>Category 1</td>
<td></td>
</tr>
<tr>
<td>toluene</td>
<td>Category 2</td>
<td></td>
</tr>
<tr>
<td>xylene</td>
<td>Category 2</td>
<td></td>
</tr>
<tr>
<td>1,4-dioxane</td>
<td>Category 2</td>
<td></td>
</tr>
<tr>
<td>chloromethane</td>
<td>Category 2</td>
<td></td>
</tr>
<tr>
<td>Formaldehyde, solution</td>
<td>Category 2</td>
<td></td>
</tr>
<tr>
<td>ethylene oxide</td>
<td>Category 2</td>
<td></td>
</tr>
</tbody>
</table>

Toxic classification (TCVN 3164-79) : 4

International regulations

Montreal Protocol
Not listed.

Stockholm Convention on Persistent Organic Pollutants
Not listed.

Section 16. Other information

History

Date of issue/Date of revision : 10 June 2024
Date of previous issue : 3/15/2024
Version : 4.08
Prepared by : EHS

Viet Nam Page: 12/13
Section 16. Other information

Key to abbreviations

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- UN = United Nations

References

- Not available.

⚠ Indicates information that has changed from previously issued version.

Notice to reader

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by PPG, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.
SIGMADUR 520
(SIGMADUR HB FINISH)

4 pages
Septembre 2005
Révision de Mars 2004

DEFINITION
finition acrylique polyuréthane aliphatique bi-composants demi-brillante, forte épaisseur

CARACTERISTIQUES PRINCIPALES
- application facile au rouleau et au pistolet airless
- recouvrement illimité
- excellente résistance aux conditions atmosphériques
- bonne rétention de teinte et de couleur (la version aluminium devient grise)
- non farinant, non jaunissant
- durcit à des températures jusqu'à -5°C
- dur et résistant à l'abrasion
- résistant aux éclaboussures d'huiles minérales et végétales, paraffines, hydrocarbures aliphatiques et produits chimiques de moyenne agressivité
- recouvrable même après une longue exposition atmosphérique

TEINTES ET ASPECT
nuancier complet de teintes et RAL 9006 aluminium disponible - semi-brillant

CARACTERISTIQUES À 20°C
(1 g/cm³ = 8.25 lb/US gal ; 1 m²/l = 40.7 ft²/US gal)
(indications pour le mélange)

Densité
1.4 g/cm³ (blanc)
1.1 g/cm³ (aluminium)

Extrait sec en volume
58 ±2% (blanc), 48 ±2% (aluminium)

COV (à la livraison)
maxi 287 g/kg (Directive 1999/13/EC, SED) (white)
maxi 377 g/kg (Directive 1999/13/EC, SED) (RAL 9006)
maxi 383 g/l (env. 3.2 lb/gal) (blanc)
maxi 405 g/l (env. 3.4 lb/gal) (aluminium)

Epaisseur recommandée du film sec
50 - 75 μm selon le système

Rendement théorique
11.6 m²/l pour 50 μm, 7.7 m²/l pour 75 μm

Sec au toucher
1 heure

Délai de recouvrement
mini 6 heures *
maxi illimité

Réticulation complète
4 jours *
(indications pour les composants)

Stockage (endroit frais et sec)
24 mois minimum

Point d'éclair
base 26°C, durcisseur 42°C

*voir indications complémentaires
SIGMADUR 520
(SIGMADUR HB FINISH)

Septembre 2005

TEMPERATURES ET CONDITIONS DU SUPPORT RECOMMANDÉES
- couche précédente (époxy ou polyuréthane) sèche et exempte de toute contamination et, si nécessaire suffisamment rugueuse
- pendant l’application et le séchage, une température du support jusqu’à -5°C est acceptable si la surface est sèche et exempte de glace
- la température du support doit être au moins de 3°C au dessus du point de rosée
- humidité relative maximum pendant l’application et le durcissement : 85%
- l’exposition prématurée à la condensation et à la pluie peut entraîner un changement de teinte et de brillance

MODE D’EMPLOY
- rapport de mélange en volume : base 88% - durcisseur 12%
- la température du mélange (base + durcisseur) doit être de préférence supérieure à 10°C, sinon ajouter du diluant afin d’obtenir la bonne viscosité d’application
- un excès de diluant entraîne un phénomène de couleur
- ajouter le diluant après mélange des composants

Durée de mûrissement du mélange
néant

Durée pratique d’utilisation du mélange
5 heures à 20°C *
*voir indications complémentaires

PISTOLET AIRLESS
Diluant recommandé
Diluant Sigma 21-06
Pourcentage de dilution
0 - 5%, selon l’épaisseur du film requise et les conditions d’application
Diamètre de la buse
env. 0.46 mm (= 18/1000ème pouce)
Pression à la buse
15 MPa (= env. 150 bars ; 2130 p.s.i.)

PISTOLET PNEUMATIQUE
Diluant recommandé
Diluant Sigma 21-06
Pourcentage de dilution
5 - 10 %, selon l’épaisseur du film requise et les conditions d’application
Diamètre de la buse
1 - 1.5 mm
Pression à la buse
0.3 - 0.4 Mpa (= env. 3 - 4 bars ; 43 - 57 p.s.i.)

BROSSE/ROULEAU
Diluant recommandé
Diluant Sigma 21-06
Pourcentage de dilution
0 - 5%

SOLVANT DE NETTOYAGE
Diluant Sigma 90-53
SIGMADUR 520
(SIGMADUR HB FINISH)

Septembre 2005

SECURITE

pour la peinture et les diluants recommandés, voir fiches de sécurité 1430, 1431 et les fiches de données de sécurité correspondantes
comme pour toute peinture à base de solvant, éviter l’inhalation des vapeurs et tout contact entre la peinture humide et les yeux et la peau
- contient un durcisseur polyisocyanate toxique
- éviter systématiquement l’inhalation des vapeurs d’aérosol de pulvérisation

INDICATIONS COMPLEMENTAIRES

Epaisseur du film et rendement

<table>
<thead>
<tr>
<th>Rendement théorique m²/l</th>
<th>teintes</th>
<th>11.6</th>
<th>7.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>aluminium</td>
<td>9.6</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>épaisseur du film sec en µm</td>
<td>50</td>
<td>75</td>
<td></td>
</tr>
</tbody>
</table>

Temps de recouvrement pour des produits SigmaDur

<table>
<thead>
<tr>
<th>Température du support</th>
<th>-5°C</th>
<th>0°C</th>
<th>10°C</th>
<th>20°C</th>
<th>30°C</th>
<th>40°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Délai minimum de recouvrement</td>
<td>24 heures</td>
<td>16 heures</td>
<td>8 heures</td>
<td>6 heures</td>
<td>5 heures</td>
<td>3 heures</td>
</tr>
<tr>
<td>Délai maximum de recouvrement</td>
<td>illimité si nettoyé de toute contamination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- le support doit être sec et exempt de toute contamination

Temps de séchage

<table>
<thead>
<tr>
<th>Température du support</th>
<th>sec manipulable</th>
<th>réticulation complète</th>
</tr>
</thead>
<tbody>
<tr>
<td>-5°C</td>
<td>24 heures</td>
<td>15 jours</td>
</tr>
<tr>
<td>0°C</td>
<td>16 heures</td>
<td>11 jours</td>
</tr>
<tr>
<td>10°C</td>
<td>8 heures</td>
<td>6 jours</td>
</tr>
<tr>
<td>20°C</td>
<td>6 heures</td>
<td>4 jours</td>
</tr>
<tr>
<td>30°C</td>
<td>5 heures</td>
<td>3 jours</td>
</tr>
<tr>
<td>40°C</td>
<td>3 heures</td>
<td>2 jours</td>
</tr>
</tbody>
</table>

- une ventilation adéquate est nécessaire pendant l’application et le séchage (voir fiches 1433 et 1434)
- une exposition prématurée à la condensation et à la pluie peut entraîner un changement de teinte et de brillance
SIGMADUR 520
(SIGMADUR HB FINISH)

Septembre 2005

durée pratique d'utilisation du mélange (à la viscosité d'application)

<table>
<thead>
<tr>
<th>Température</th>
<th>Durée pratique</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 °C</td>
<td>7 heures</td>
</tr>
<tr>
<td>20 °C</td>
<td>5 heures</td>
</tr>
<tr>
<td>30 °C</td>
<td>3 heures</td>
</tr>
<tr>
<td>40 °C</td>
<td>2 heures</td>
</tr>
</tbody>
</table>

Disponibilité mondiale
Bien que l'objectif de Sigma Coatings soit de fournir le même produit dans le monde entier, il est parfois nécessaire d'apporter une légère modification au produit afin de se conformer aux règles/contexts locaux ou nationaux. Dans ces conditions, une autre fiche technique est utilisée en alternative.

REFERENCES
- Explication des fiches techniques
- Conditions de sécurité
- Hygiène et sécurité en espaces confinés
- Risques d'explosion et toxicité
- Règles de sécurité pour les espaces confinés
- Instructions pour ventilation

voir fiche d'information 1411
voir fiche d'information 1430
voir fiche d'information 1431
voir fiche d'information 1433
voir fiche d'information 1434

LIMITATION DE RESPONSABILITÉ
Les renseignements figurant dans la présente fiche technique sont, à notre connaissance, exacts et ne sont donnés qu'à titre indicatif. Toute recommandation ou suggestion concernant l'utilisation des produits, formulée par Sigma Coatings dans sa documentation technique, en réponse à une demande spécifique ou autre, est basée sur des données qui sont, à notre connaissance, fiables. Les produits et renseignements sont conçus pour des utilisateurs ayant les connaissances et expertises industrielles nécessaires et c'est à l'utilisateur final qu'il appartient de déterminer si le produit est adapté à l'application visée.

Sigma Coatings n'exerce aucun contrôle ni sur la qualité, ni sur la condition du support, ni sur les différents facteurs qui influencent l'usage et l'application du produit. Sigma Coatings réfute donc toute responsabilité en cas de perte, blessure ou dommages résultant d'une telle utilisation ou du contenu de cette fiche technique (sauf accord écrit contraire)

Les renseignements figurant dans cette fiche technique sont susceptibles d'être modifiés en fonction de l'expérience pratique et l'amélioration constante du produit.
Cette fiche technique annulant et remplaçant toute édition antérieure, il appartient donc à notre clientèle, avant toute utilisation, de vérifier la validité de cette notice.

En cas de contradiction ou désaccord avec les termes de ce document, résultant de la traduction de l'original en anglais, c'est la version anglaise qui prévaldra.

DS 7524
119852 blanc 7000002200
183212 aluminium 9006262200
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: INTERZINC 697 GREY PART A
Product code: XGW771

1.2 Relevant identified uses of the substance or mixture and uses advised against

<table>
<thead>
<tr>
<th>Identified uses</th>
<th>Uses advised against</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional application of coatings and inks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.3 Details of the supplier of the safety data sheet

International Farg AB
Holmedalen 3
Aspereds Industriomrade
SE-424 22 Angered
Sweden

Tel: +46 (0) 31 928500   Fax: +46 (0) 31 928530

E-mail address of person responsible for this SDS: sdsfellinguk@akzonobel.com

National contact

1.4 Emergency telephone number

National advisory body/Poison Centre (For use only by licensed medical professionals.)

Telephone number: +44 (0)344 892 0111 (UK)   +353 (0)1 809 2566 (Eire)
Supplier

Telephone number: +46 8 33 12 31

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition: Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Skin Irrit. 2, H315
Eye Irrit. 2, H319
STOT SE 3, H335

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements
SECTION 2: Hazards identification

Hazard pictograms:

![Warning]

Signal word: Warning
Hazard statements:
- Causes serious eye irritation.
- Causes skin irritation.
- May cause respiratory irritation.

Precautionary statements:
General: Not applicable.
Prevention:
- Wear protective gloves. Wear eye or face protection. Use only outdoors or in a well-ventilated area.
Response:
- IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
- IF ON SKIN: Take off contaminated clothing and wash it before reuse.
Storage:
- Store locked up.
Disposal:
- Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients:
- Silicic acid, potassium salt

Supplemental label elements:
- Wear protective gloves. Wear eye or face protection. Use only outdoors or in a well-ventilated area.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN: Take off contaminated clothing and wash it before reuse.

2.3 Other hazards

Other hazards which do not result in classification: None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures: Mixture

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>% by weight</th>
<th>Classification</th>
</tr>
</thead>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Date of issue/Date of revision: 17/01/2020
Version: 5
SECTION 3: Composition/information on ingredients

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

General: In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and seek medical advice.

Eye contact: Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.

Inhalation: Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Seek medical attention.

Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Seek medical attention if irritation persists. Do NOT use solvents or thinners.

Ingestion: If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do NOT induce vomiting.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact: Causes serious eye irritation.

Inhalation: May cause respiratory irritation.

Skin contact: Causes skin irritation.

Ingestion: Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following:
- pain or irritation
- watering
- redness

Inhalation: Adverse symptoms may include the following:
- respiratory tract irritation
- coughing

Skin contact: Adverse symptoms may include the following:
- irritation
- redness

Ingestion: No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments: No specific treatment.
SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Hazard from the substance or mixture : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : No specific data.

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spill material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections : See Section 1 for emergency contact information.

See Section 8 for information on appropriate personal protective equipment.

See Section 13 for additional waste treatment information.
SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations: Not available.

Industrial sector specific solutions: Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits: No exposure limit value known.

Recommended monitoring procedures: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs: No DNELs/DMELs available.

PNECs: No PNECs available

8.2 Exposure controls

Date of issue/Date of revision: 17/01/2020
Version: 5
INTERZINC 697 GREY PART A

SECTION 8: Exposure controls/personal protection

Appropriate engineering controls: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Use eye protection according to EN 166, designed to protect against liquid splashes. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection: Use chemical resistant gloves classified under Standard EN 374: Protective gloves against chemicals and micro-organisms. Recommended: Viton® or Nitrile gloves. Butyl rubber gloves. When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to EN 374) is recommended. The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier. Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. EN ISO 13688

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary according to EN529. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state: Liquid.

Colour: Grey.

Odour: Odourless.

Odour threshold: Not available.

pH: Not applicable.

Melting point/freezing point: Not available.

Date of issue/Date of revision: 17/01/2020

Version: 5
SECTION 9: Physical and chemical properties

Initial boiling point and boiling range
- Lowest known value: 100°C (212°F) (water).

Flash point
- Closed cup: 101°C

Evaporation rate
- Not available.

Flammability (solid, gas)
- Not available.

Upper/lower flammability or explosive limits
- Not available.

Vapour pressure
- Not available.

Vapour density
- Not available.

Relative density
- 1.22

Solubility(ies)
- Soluble in the following materials: cold water.

Vapour density
- Not available.

Partition coefficient: n-octanol/water
- Not available.

Auto-ignition temperature
- Not available.

Decomposition temperature
- Not available.

Viscosity
- Kinematic (room temperature): 37 mm²/s

Explosive properties
- Not available.

Oxidising properties
- Not available.

9.2 Other information
- No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity
- No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability
- The product is stable.

10.3 Possibility of hazardous reactions
- Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid
- No specific data.

10.5 Incompatible materials
- No specific data.

10.6 Hazardous decomposition products
- Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
- Conclusion/Summary: Not available.

Irritation/Corrosion
- Conclusion/Summary: Not available.

Sensitisation
- Conclusion/Summary: Not available.

Mutagenicity
- Conclusion/Summary: Not available.

Carcinogenicity
- Conclusion/Summary: Not available.

Reproductive toxicity
- Conclusion/Summary: Not available.

Date of issue/Date of revision: 17/01/2020
Version: 5
### SECTION 11: Toxicological information

#### Conclusion/Summary
Not available.

#### Teratogenicity

##### Conclusion/Summary
Not available.

### Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicic acid, potassium salt</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

#### Specific target organ toxicity (repeated exposure)
Not available.

#### Aspiration hazard
Not available.

### Information on likely routes of exposure
Not available.

#### Potential acute health effects

##### Eye contact
Causes serious eye irritation.

##### Inhalation
May cause respiratory irritation.

##### Skin contact
Causes skin irritation.

##### Ingestion
Irritating to mouth, throat and stomach.

#### Symptoms related to the physical, chemical and toxicological characteristics

##### Eye contact
Adverse symptoms may include the following:
- pain or irritation
- watering
- redness

##### Inhalation
Adverse symptoms may include the following:
- respiratory tract irritation
- coughing

##### Skin contact
Adverse symptoms may include the following:
- irritation
- redness

##### Ingestion
No specific data.

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

##### Short term exposure

- Potential immediate effects: Not available.
- Potential delayed effects: Not available.

##### Long term exposure

- Potential immediate effects: Not available.
- Potential delayed effects: Not available.

#### Potential chronic health effects
Not available.

##### Conclusion/Summary
Not available.

- General: No known significant effects or critical hazards.
- Carcinogenicity: No known significant effects or critical hazards.
- Mutagenicity: No known significant effects or critical hazards.
- Teratogenicity: No known significant effects or critical hazards.

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**Date of issue/Date of revision**: 17/01/2020
SECTION 11: Toxicological information

Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity
Conclusion/Summary : Not available.

12.2 Persistence and degradability
Conclusion/Summary : Not available.

12.3 Bioaccumulative potential
Not available.

12.4 Mobility in soil
Soil/water partition coefficient (K_{oc}) : Not available.
Mobility : Not available.

12.5 Results of PBT and vPvB assessment
PBT : Not applicable.
vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product
Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

European waste catalogue (EWC)

<table>
<thead>
<tr>
<th>Code number</th>
<th>Waste designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>EWC 08 01 20</td>
<td>aqueous suspensions containing paint or varnish other than those mentioned in 08 01 19</td>
</tr>
</tbody>
</table>

Packaging

Methods of disposal : Dispose of containers contaminated by the product in accordance with local or national legal provisions. This material and its container must be disposed of as hazardous waste. Dispose of via a licensed waste disposal contractor.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.
## SECTION 14: Transport information

<table>
<thead>
<tr>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2 UN proper shipping name</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14.3 Transport hazard class(es)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14.5 Environmental hazards</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Additional information</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

IMDG Code Segregation group: Not applicable.

### 14.6 Special precautions for user

- Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not available.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### EU Regulation (EC) No. 1907/2006 (REACH)

- **Annex XIV - List of substances subject to authorisation**
  - **Annex XIV**
    - Substances of very high concern: None of the components are listed.
  - **Annex XVII - Restrictions** on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles: Not applicable.

#### Other EU regulations

- **Europe inventory**: All components are listed or exempted.

#### Special packaging requirements

- **Containers to be fitted with child-resistant fastenings**: Not applicable.
- **Tactile warning of danger**: Not applicable.
- **Ozone depleting substances (1005/2009/EU)**: Not listed.

### Date of issue/Date of revision

17/01/2020

### Version

5
SECTION 15: Regulatory information

Prior Informed Consent (PIC) (649/2012/EU)
Not listed.

National regulations


15.2 Chemical safety assessment
No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms
ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

<table>
<thead>
<tr>
<th>Classification</th>
<th>Calculation method</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Irrit. 2, H315</td>
<td></td>
<td>Calculation method</td>
</tr>
<tr>
<td>Eye Irrit. 2, H319</td>
<td></td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT SE 3, H335</td>
<td></td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

Full text of abbreviated H statements

| H315           | Causes skin irritation.     |
| H319           | Causes serious eye irritation. |
| H335           | May cause respiratory irritation. |

Full text of classifications [CLP/GHS]

| Eye Irrit. 2, H319   | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 |
| Skin Irrit. 2, H315  | SKIN CORROSION/IRRITATION - Category 2 |
| STOT SE 3, H335      | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 |

Date of printing: 17/01/2020
Date of issue/Date of revision: 17/01/2020
Date of previous issue: 17/01/2020
Version: 5

Notice to reader

IMPORTANT NOTE: the information contained in this data sheet (as may be amended from time to time) is not intended to be exhaustive and is presented in good faith and believed to be correct as of the date on which it is prepared. It is the user’s responsibility to verify that this data sheet is current prior to using the product to which it relates.

Persons using the information must make their own determinations as to the suitability of the relevant product for their purposes prior to use. Where those purposes are other than as specifically recommended in this safety data sheet, then the user uses the product at their own risk.

MANUFACTURER’S DISCLAIMER: the conditions, methods and factors affecting the handling, storage, application, use and disposal of the product are not under the control and knowledge of the manufacturer. Therefore the manufacturer does not assume responsibility for any adverse events which may occur in the handling, storage, application, use, misuse or disposal of the product and, so far as permitted by applicable law, the manufacturer expressly disclaims liability for any and all loss, damages and/or expenses arising out of or in any way connected to the storage, handling, use or disposal of the product. Safe handling, storage,
SECTION 16: Other information

use and disposal are the responsibility of the users. Users must comply with all applicable health and safety laws.

Unless we have agreed to the contrary, all products are supplied by us subject to our standard terms and conditions of business, which include limitations of liability. Please make sure to refer to these and / or the relevant agreement which you have with AkzoNobel (or its affiliate, as the case may be).

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Product name: INTERZINC 697 PART B
EC number: Not available.
CAS number: Not available.
Product code: XGW772

1.2 Relevant identified uses of the substance or mixture and uses advised against

<table>
<thead>
<tr>
<th>Identified uses</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional application of coatings and inks</td>
<td></td>
</tr>
</tbody>
</table>

All Other Uses

1.3 Details of the supplier of the safety data sheet
International Farg AB
Holmedalen 3
Aspereds Industriomrade
SE-424 22 Angered
Sweden

Tel: +46 (0) 31 928500    Fax: +46 (0) 31 928530

National contact

e-mail address of person responsible for this SDS: sdsfellinguk@akzonobel.com

1.4 Emergency telephone number
National advisory body/Poison Centre (For use only by licensed medical professionals.)

<table>
<thead>
<tr>
<th>Telephone number</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>+44 (0)344 892 0111 (UK)</td>
<td>+353 (0)1 809 2566 (Eire)</td>
</tr>
</tbody>
</table>

Supplier

<table>
<thead>
<tr>
<th>Telephone number</th>
</tr>
</thead>
<tbody>
<tr>
<td>+46 8 33 12 31</td>
</tr>
</tbody>
</table>

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Product definition: Mono-constituent substance

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Aquatic Acute 1, H400
Aquatic Chronic 1, H410

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements
SECTION 2: Hazards identification

Hazard pictograms:

Signal word: Warning
Hazard statements: Very toxic to aquatic life with long lasting effects.
Precautionary statements:
- General: Not applicable.
- Prevention: Avoid release to the environment.
- Response: Collect spillage.
- Storage: Not applicable.
- Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients: INTERZINC 697 PART B
Supplemental label elements:
- Wear appropriate respirator when ventilation is inadequate.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles: Not applicable.

2.3 Other hazards
P: Not available. B: Not available. T: No.
Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII: Not available.
Other hazards which do not result in classification: None known.

SECTION 3: Composition/information on ingredients

3.1 Substances: Mono-constituent substance

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>% by weight</th>
<th>Classification</th>
<th>Nota(s)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc powder - zinc dust (stabilized)</td>
<td>REACH #: 01-2119467174-37 EC: 231-175-3 CAS: 7440-66-6 Index: 030-001-01-9</td>
<td>100</td>
<td>Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=10)</td>
<td>[A]</td>
<td></td>
</tr>
</tbody>
</table>

See Section 16 for the full text of the H statements declared above.

Date of issue/Date of revision: 17/01/2020
Version: 5
SECTION 3: Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type
[A] Constituent
[B] Impurity
[C] Stabilising additive

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures
General: In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and seek medical advice.

Eye contact: Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.

Inhalation: Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Seek medical attention.

Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Seek medical attention if irritation persists. Do NOT use solvents or thinners.

Ingestion: If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do NOT induce vomiting.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects
Eye contact: No known significant effects or critical hazards.
Inhalation: No known significant effects or critical hazards.
Skin contact: No known significant effects or critical hazards.
Ingestion: No known significant effects or critical hazards.

Over-exposure signs/symptoms
Eye contact: No specific data.
Inhalation: No specific data.
Skin contact: No specific data.
Ingestion: No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments: No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture: This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Date of issue/Date of revision: 17/01/2020
Version: 5
SECTION 5: Firefighting measures

Hazardous thermal decomposition products: Decomposition products may include the following materials:
metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions: Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material for containment and cleaning up

Small spill: Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

Large spill: Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections: See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
SECTION 7: Handling and storage

7.2 Conditions for safe storage, including any incompatibilities
Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)
Recommendations: Not available.
Industrial sector specific solutions: Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters
Occupational exposure limits
No exposure limit value known.

Recommended monitoring procedures: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs
No DNELs/DMELs available.

PNECs
No PNECs available

8.2 Exposure controls
Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures
Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Use eye protection according to EN 166, designed to protect against liquid splashes. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
SECTION 8: Exposure controls/personal protection

Hand protection: Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Use chemical resistant gloves classified under Standard EN 374: Protective gloves against chemicals and micro-organisms. Recommended: Viton® or Nitrile gloves. When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to EN 374) is recommended. The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier. Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. EN ISO 13688

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

**Appearance**

- **Physical state**: Solid. [powder]
- **Colour**: Grey
- **Odour**: Odourless
- **Odour threshold**: Not available
- **pH**: Not applicable
- **Melting point/freezing point**: Not available
- **Initial boiling point and boiling range**: Not available
- **Flash point**: Closed cup: 101°C
- **Evaporation rate**: Not available
- **Flammability (solid, gas)**: Not available
- **Upper/lower flammability or explosive limits**: Not available
- **Vapour pressure**: Not available
- **Vapour density**: Not available
- **Relative density**: 7.1
- **Solubility(ies)**: Insoluble in the following materials: cold water
- **Partition coefficient: n-octanol/water**: Not available
- **Auto-ignition temperature**: Not available
- **Decomposition temperature**: Not available

**Date of issue/Date of revision**: 17/01/2020

**Version**: 5

**6/12**
SECTION 9: Physical and chemical properties

Viscosity: Kinematic (room temperature): 998 mm²/s
Explosive properties: Not available.
Oxidising properties: Not available.

9.2 Other information
No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity: No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability: The product is stable.

10.3 Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid: No specific data.

10.5 Incompatible materials: No specific data.

10.6 Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Conclusion/Summary: Not available.

Irritation/Corrosion
Conclusion/Summary: Not available.

Sensitisation
Conclusion/Summary: Not available.

Mutagenicity
Conclusion/Summary: Not available.

Carcinogenicity
Conclusion/Summary: Not available.

Reproductive toxicity
Conclusion/Summary: Not available.

Teratogenicity
Conclusion/Summary: Not available.

Specific target organ toxicity (single exposure)
Not available.

Specific target organ toxicity (repeated exposure)
Not available.

Aspiration hazard
Not available.

Information on likely routes of exposure: Not available.

Potential acute health effects

Eye contact: No known significant effects or critical hazards.

Date of issue/Date of revision: 17/01/2020
Version: 5
SECTION 11: Toxicological information

Inhalation: No known significant effects or critical hazards.
Skin contact: No known significant effects or critical hazards.
Ingestion: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: No specific data.
Inhalation: No specific data.
Skin contact: No specific data.
Ingestion: No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Short term exposure**
- Potential immediate effects: Not available.
- Potential delayed effects: Not available.

**Long term exposure**
- Potential immediate effects: Not available.
- Potential delayed effects: Not available.

**Potential chronic health effects**
Not available.

**Conclusion/Summary**
- Not available.

**General**
- No known significant effects or critical hazards.

**Carcinogenicity**
- No known significant effects or critical hazards.

**Mutagenicity**
- No known significant effects or critical hazards.

**Teratogenicity**
- No known significant effects or critical hazards.

**Developmental effects**
- No known significant effects or critical hazards.

**Fertility effects**
- No known significant effects or critical hazards.

**Other information**
- Not available.

SECTION 12: Ecological information

### 12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>zinc powder zinc dust (stabilised)</td>
<td>Acute EC50 0.572 mg/l Marine water</td>
<td>Algae - Ulva pertusa</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 356 μg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 0.24 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 72.9 μg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata - Exponential growth phase</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 9 mg/l Fresh water</td>
<td>Aquatic plants - Ceratophyllum demersum</td>
<td>3 days</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 178 μg/l Marine water</td>
<td>Crustaceans - Palaemon elegans</td>
<td>21 days</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 2.6 μg/l Fresh water</td>
<td>Fish - Cyprinus carpio</td>
<td>4 weeks</td>
</tr>
</tbody>
</table>

**Conclusion/Summary**
- Not available.

### 12.2 Persistence and degradability

**Conclusion/Summary**
- Not available.
SECTION 12: Ecological information

12.3 Bioaccumulative potential
Not available.

12.4 Mobility in soil
Soil/water partition coefficient (K_{oc}) : Not available.
Mobility : Not available.

12.5 Results of PBT and vPvB assessment
PBT : No.
P: Not available. B: Not available. T: No.
vPvB : Not available.
vP: Not available. vB: Not available.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product
Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

Packaging
Methods of disposal : Dispose of containers contaminated by the product in accordance with local or national legal provisions. This material and its container must be disposed of as hazardous waste. Dispose of via a licensed waste disposal contractor.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

<table>
<thead>
<tr>
<th>14.1 UN number</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN3077</td>
<td>UN3077</td>
<td>UN3077</td>
<td>UN3077</td>
</tr>
</tbody>
</table>

14.2 UN proper shipping name
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc powder - zinc dust (stabilized))

14.3 Transport hazard class(es)
9

Date of issue/Date of revision : 17/01/2020
Version : 5
SECTION 14: Transport information

### 14.4 Packing group

<table>
<thead>
<tr>
<th>III</th>
<th>III</th>
<th>III</th>
</tr>
</thead>
</table>

### 14.5 Environmental hazards

| Yes. | Yes. | Yes. |

### Additional information

This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

**Tunnel code**

(E)

This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.

**IMDG Code Segregation group**

: Not applicable.

### 14.6 Special precautions for user

**Transport within user’s premises:** Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

: Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**EU Regulation (EC) No. 1907/2006 (REACH)**

**Annex XIV - List of substances subject to authorisation**

**Annex XIV**

Substances of very high concern

None of the components are listed.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles**

: Not applicable.

**Other EU regulations**

Europe inventory : All components are listed or exempted.

**Special packaging requirements**

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

**Ozone depleting substances (1005/2009/EU)**

Not listed.

**Prior Informed Consent (PIC) (649/2012/EU)**

Not listed.

**National regulations**

*Date of issue/Date of revision* : 17/01/2020

*Version* : 5
SECTION 15: Regulatory information

References:

15.2 Chemical safety assessment:
No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms:
- ATE = Acute Toxicity Estimate
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number
- vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Acute 1, H400</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Aquatic Chronic 1, H410</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

Full text of abbreviated H statements:
- H400: Very toxic to aquatic life.
- H410: Very toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]:
- Aquatic Acute 1, H400: ACUTE AQUATIC HAZARD - Category 1
- Aquatic Chronic 1, H410: LONG-TERM AQUATIC HAZARD - Category 1

Notice to reader:

IMPORTANT NOTE: the information contained in this data sheet (as may be amended from time to time) is not intended to be exhaustive and is presented in good faith and believed to be correct as of the date on which it is prepared. It is the user’s responsibility to verify that this data sheet is current prior to using the product to which it relates.

Persons using the information must make their own determinations as to the suitability of the relevant product for their purposes prior to use. Where those purposes are other than as specifically recommended in this safety data sheet, then the user uses the product at their own risk.

MANUFACTURER’S DISCLAIMER: the conditions, methods and factors affecting the handling, storage, application, use and disposal of the product are not under the control and knowledge of the manufacturer. Therefore the manufacturer does not assume responsibility for any adverse events which may occur in the handling, storage, application, use, misuse or disposal of the product and, so far as permitted by applicable law, the manufacturer expressly disclaims liability for any and all loss, damages and/or expenses arising out of or in any way connected to the storage, handling, use or disposal of the product. Safe handling, storage, use and disposal are the responsibility of the users. Users must comply with all applicable health and safety laws.

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SAFETY DATA SHEET
WAX SOLUTION

Section 1. Identification

GHS product identifier : WAX SOLUTION
Product code : COR50-DB-001
Other means of identification : Additive Solution
Product type : Liquid.

Material uses
Product use : Industrial applications.

Supplier's details
INTERPLASTIC CORPORATION
1225 Willow Lake Boulevard
St. Paul, MN 55110-5145
651.481.6860

Emergency telephone number (with hours of operation)
CHEMTREC 24-Hour Emergency Telephone 800.424.9300

Section 2. Hazards identification

OSHA/HGS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
ACUTE TOXICITY (inhalation) - Category 4
SKIN IRITIATION - Category 2
EYE IRITIATION - Category 2A
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 1
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 12%

GHS label elements
Hazard pictograms :

Signal word : Danger
Hazard statements : Flammable liquid and vapor. Harmful if inhaled. Causes serious eye irritation. Causes skin irritation. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. (hearing organs)

Precautionary statements

Date of issue/Date of revision : 8/1/2017 Date of previous issue : 3/30/2016 Version : 9
Section 2. Hazards identification

Prevention: Wear protective gloves. Wear eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response: Get medical attention if you feel unwell. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage: Store locked up. Store in a well-ventilated place. Keep cool.

Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations. Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Hazard not otherwise classified: None known.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture

Other means of identification: Additive Solution

CAS number/other identifiers

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>70.0 - 90.0</td>
<td>100-42-5</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation. Any concentration shown as exact is based on formula.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.
See Section 9 for VOC content. See Section 15 for HAP information.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Section 4. First aid measures

**Inhalation**
- Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Skin contact**
- Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Ingestion**
- Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention following exposure or if feeling unwell. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Most important symptoms/effect, acute and delayed**

**Potential acute health effects**
- **Eye contact**
  - Causes serious eye irritation.
- **Inhalation**
  - Harmful if inhaled. May cause respiratory irritation.
- **Skin contact**
  - Causes skin irritation.
- **Ingestion**
  - No known significant effects or critical hazards.

**Over-exposure signs/symptoms**
- **Eye contact**
  - Adverse symptoms may include the following:
    - pain or irritation
    - watering
    - redness
- **Inhalation**
  - Adverse symptoms may include the following:
    - respiratory tract irritation
    - coughing
- **Skin contact**
  - Adverse symptoms may include the following:
    - irritation
    - redness
- **Ingestion**
  - No specific data.

**Indication of immediate medical attention and special treatment needed, if necessary**
- **Notes to physician**
  - Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- **Specific treatments**
  - No specific treatment.
- **Protection of first-aiders**
  - No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)
Section 5. Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing media**: Use dry chemical, CO₂, water spray (fog) or foam.

**Unsuitable extinguishing media**: Do not use water jet.

**Specific hazards arising from the chemical**: Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

**Hazardous thermal decomposition products**: Decomposition products may include the following materials: carbon dioxide, carbon monoxide.

**Special protective actions for fire-fighters**: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for fire-fighters**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel**: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders**: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions**: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

**Methods and materials for containment and cleaning up**

**Small spill**: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill**: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact.
Section 6. Accidental release measures

information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Do not store above the following temperature: 40°C (104°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>ACGIH TLV (United States, 3/2016). TWA: 20 ppm 8 hours. TWA: 85 mg/m³ 8 hours. STEL: 40 ppm 15 minutes. STEL: 170 mg/m³ 15 minutes. OSHA PEL 1989 (United States, 3/1989). TWA: 50 ppm 8 hours. TWA: 215 mg/m³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 425 mg/m³ 15 minutes. OSHA PEL Z2 (United States, 2/2013). TWA: 100 ppm 8 hours. CEIL: 200 ppm AMP: 600 ppm 5 minutes. NIOSH REL (United States, 10/2016). TWA: 50 ppm 10 hours. TWA: 215 mg/m³ 10 hours. STEL: 100 ppm 15 minutes. STEL: 425 mg/m³ 15 minutes.</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 8/1/2017  Date of previous issue: 3/30/2016  Version: 9  5/14
Section 8. Exposure controls/personal protection

Appropriate engineering controls: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures
Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection
Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance
Physical state: Liquid.
Color: Yellow. [Light]
Odor: Aromatic. Sweetish.
Odor threshold: 0.1 ppm
pH: Not applicable.
Melting point: >31°C (>–23.8°F)
Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling point</td>
<td>245°C (293°F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>Closed cup: 31°C (87.8°F)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>&lt;1 (butyl acetate = 1)</td>
</tr>
<tr>
<td>Lower and upper explosive (flammable) limits</td>
<td>Lower: 0.9%</td>
</tr>
<tr>
<td></td>
<td>Upper: 6.8%</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0.67 kPa (5 mm Hg) [room temperature]</td>
</tr>
<tr>
<td>Vapor density</td>
<td>3.6 [Air = 1]</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.89</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>0.32 g/l</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available</td>
</tr>
<tr>
<td>VOC content (industrial use)</td>
<td>88 % (w/w)</td>
</tr>
</tbody>
</table>

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of hazardous reactions: Hazardous reactions or instability may occur under certain conditions of storage or use.

Conditions to avoid: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

Polymerization may occur if heated above 150°F. Can cause rupture of container. Metal salts, peroxides and strong acids may also cause polymerization. Keep away from heat and direct sunlight. Keep away from heat and flame. Keep away from oxidizing agents. Avoid loss of inhibitor.

Incompatible materials: Reactive or incompatible with the following materials: oxidizing materials.

Incompatible with the following materials: metals, acids and alkalis. Incompatible with alkali metals. Incompatible with some alkalis. Incompatible with some strong acids. Incompatible with copper alloys, brass.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/Ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>2770 ppm</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>11800 mg/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2650 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/Ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>Eyes - Mild irritant</td>
<td>Human</td>
<td>-</td>
<td>50 parts per million</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 Percent</td>
<td>-</td>
</tr>
</tbody>
</table>

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Conclusion/Summary

Styrene manufacturers have determined that the weight of evidence for the carcinogenicity of this substance does not meet the criteria for classification.

Styrene is listed by IARC as a possible carcinogen to humans (Group 2B) based on "limited evidence" in humans, "limited evidence" in animals and "other relevant data". The United States NTP listed styrene as reasonably anticipated to be a human carcinogen based on "limited evidence" from studies in humans, "sufficient evidence" from studies in experimental animals, and supporting data on mechanisms of carcinogenesis. The significance of these results for humans has not been established through risk assessment.

Classification

<table>
<thead>
<tr>
<th>Product/Ingredient name</th>
<th>OSHA</th>
<th>IARC</th>
<th>NTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>-</td>
<td>2B</td>
<td>Reasonably anticipated to be a human carcinogen.</td>
</tr>
</tbody>
</table>

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)
Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>Category 1</td>
<td>Inhalation</td>
<td>hearing organs</td>
</tr>
</tbody>
</table>

Aspiration hazard

<table>
<thead>
<tr>
<th>Name</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrene</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
</tbody>
</table>

Information on the likely routes of exposure

Potential acute health effects

Eye contact: Causes serious eye irritation.
Inhalation: Harmful if inhaled. May cause respiratory irritation.
Skin contact: Causes skin irritation.
Ingestion: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: Adverse symptoms may include the following:
- pain or irritation
- watering
- redness
Inhalation: Adverse symptoms may include the following:
- respiratory tract irritation
- coughing
Skin contact: Adverse symptoms may include the following:
- irritation
- redness
Ingestion: No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects: Not available.
Potential delayed effects: Not available.

Long term exposure

Potential immediate effects: Not available.
Potential delayed effects: Not available.

Potential chronic health effects
Not available.
Section 11. Toxicological information

**General**: Causes damage to organs through prolonged or repeated exposure.

**Carcinogenicity**: No known significant effects or critical hazards.

**Mutagenicity**: No known significant effects or critical hazards.

**Teratogenicity**: No known significant effects or critical hazards.

**Developmental effects**: No known significant effects or critical hazards.

**Fertility effects**: No known significant effects or critical hazards.

**Numerical measures of toxicity**

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>2650.1 mg/kg</td>
</tr>
<tr>
<td>Inhalation (gases)</td>
<td>2770.1 ppm</td>
</tr>
<tr>
<td>Inhalation (vapors)</td>
<td>11.8 mg/l</td>
</tr>
</tbody>
</table>

Section 12. Ecological information

**Toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>Acute EC50 1400 μg/l Fresh water</td>
<td>Algae - Pseudokirchneriella</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 720 μg/l Fresh water</td>
<td>subcapitata</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 4700 μg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 52 mg/l Marine water</td>
<td>Crustaceans - Artemia salina</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 4020 μg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 63 μg/l Fresh water</td>
<td>Algae - Pseudokirchneriella</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>subcapitata</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Persistence and degradability**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>OECD</td>
<td>70 % - Readily - 28 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>

**Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>0.35</td>
<td>13.49</td>
<td>low</td>
</tr>
</tbody>
</table>

**Mobility in soil**

**Soil/water partition coefficient (K<sub>oc</sub>)**: Not available.

**Other adverse effects**: No known significant effects or critical hazards.

**Date of issue/Date of revision**: 8/1/2017

**Date of previous issue**: 3/30/2016

**Version**: 9
Section 13. Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

<table>
<thead>
<tr>
<th>DOT Classification</th>
<th>Mexico Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN993</td>
<td>UN993</td>
<td>UN993</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>FLAMMABLE LIQUID, N.O.S. (styrene)</td>
<td>FLAMMABLE LIQUID, N.O.S. (styrene)</td>
<td>FLAMMABLE LIQUID, N.O.S. (styrene)</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Additional information</td>
<td>Reportable quantity 1136.4 lbs / 515.91 kg [153.13 gal / 579.67 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Section 14. Transport information

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code: Not available.

Section 15. Regulatory information

U.S. Federal regulations:
- TSCA 8(a) PAIR: 4-tert-butylypyrocatechol
- TSCA 8(a) CDR Exempt/Partial exemption: Not determined
- United States inventory (TSCA 8b): All components are listed or exempted.
- Clean Water Act (CWA) 307: Naphthenic acids, copper salts
- Clean Water Act (CWA) 311: styrene

Clean Air Act Section 112:
- Styrene
- 1,4-dihydroxybenzene
- p-benzoquinone

Pollutants (HAPs): Not listed

Clean Air Act Section 602:
- Not listed

Class I Substances:

Clean Air Act Section 602:
- Not listed

Class II Substances:

SARA 302/304

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>EHS</th>
<th>SARA 302 TPQ (lbs)</th>
<th>SARA 304 RQ (gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,4-dihydroxybenzene</td>
<td>0.00</td>
<td>Yes</td>
<td>500 / 10000 -</td>
<td>100</td>
</tr>
</tbody>
</table>

SARA 304 RQ: 10000000 lbs / 4540000 kg [1347574.3 gal / 5101123.6 L]

SARA 311/312

Classification:
- Immediate (acute) health hazard
- Delayed (chronic) health hazard

SARA 313

<table>
<thead>
<tr>
<th>Form R - Reporting requirements</th>
<th>Product name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Styrene</td>
<td>100-42-5</td>
<td>88.00</td>
</tr>
</tbody>
</table>

Supplier notification:

<table>
<thead>
<tr>
<th>Product name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>88.00</td>
</tr>
</tbody>
</table>

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts: The following components are listed: STYRENE; PHENYLETHYLENE
New York: The following components are listed: Styrene
New Jersey: The following components are listed: STYRENE MONOMER; BENZENE, ETHERYL-
Pennsylvania: The following components are listed: BENZENE, ETHERYL-

Date of Issue/Date of revision: 8/1/2017
Date of previous issue: 3/30/2016
Version: 9
Section 15. Regulatory information

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Cancer</th>
<th>Reproductive</th>
<th>No significant risk level</th>
<th>Maximum acceptable dosage level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

International regulations

International lists
- Australia inventory (AICS): All components are listed or exempted.
- China inventory (IECSC): All components are listed or exempted.
- Japan inventory (ENCS): Not determined.
- Japan inventory (ISHL): Not determined.
- Korea inventory: All components are listed or exempted.
- Malaysia Inventory (EHS Register): Not determined.
- New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
- Philippines inventory (PICCS): All components are listed or exempted.
- Taiwan Chemical Substances Inventory (TCSI): All components are listed or exempted.
- Turkey inventory: Not determined.

Canada inventory
- All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

<table>
<thead>
<tr>
<th>Health</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>3</td>
</tr>
<tr>
<td>Physical hazards</td>
<td>2</td>
</tr>
</tbody>
</table>

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Flammability

Health 2

Instability/Reactivity

Special

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.
Section 16. Other information

History
Date of printing : 8/1/2017
Date of issue/Date of revision : 8/1/2017
Date of previous issue : 3/30/2016
Version : 9
Prepared by : Health, Safety and Environmental Department
Email : For questions regarding the SDS contact: iasafety@ip-corporation.com
Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973
as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations


Notice to reader
To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.
PRODUCT DESCRIPTION
LOCTITE® 7090™ provides the following product characteristics:

<table>
<thead>
<tr>
<th>Technology</th>
<th>Activator for LOCTITE® anaerobic adhesives and sealants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Type</td>
<td>Copper salt and Aliphatic amine</td>
</tr>
<tr>
<td>Solvent</td>
<td>Reactive methacrylate monomer</td>
</tr>
<tr>
<td>Appearance</td>
<td>Dark blue-green liquid</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Low</td>
</tr>
<tr>
<td>Cure</td>
<td>Copolymerization</td>
</tr>
<tr>
<td>Application</td>
<td>Cure acceleration of LOCTITE® anaerobic products</td>
</tr>
</tbody>
</table>

LOCTITE® 7090™ is a reactive monomer based "solvent free" surface activator designed to promote the cure speed of LOCTITE® anaerobic products. It is especially recommended for applications with passive metals or inert surfaces and with large bond gaps. LOCTITE® 7090™ is particularly recommended when prevailing temperature is low (<15 °C).

TYPICAL PROPERTIES
Specific Gravity @ 25 °C 1.03
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):
Spindle 1, speed 20 rpm 10 to 25

Flash Point - See MSDS
On Part Life, hours ≤1

TYPICAL PERFORMANCE
Fixture time and cure speed achieved as a result of using LOCTITE® 7090™ depend on the adhesive used and the substrate bonded.

Fixture Time, ISO 4587, seconds:
Steel (grit blasted) using LOCTITE® 326™, two side activation ≤25

(Fixture time is defined as the time to develop a shear strength of 0.1 N/mm² )

GENERAL INFORMATION
This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected with a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Under no circumstances should activator and adhesive be mixed directly as liquids. Use only in a well ventilated area.

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cure and performance of the adhesive.

Directions for use:
1. Spray or brush on the activator on both mating surfaces to be bonded. For small gaps, treatment of only one surface may be adequate. Contaminated surfaces may need repeated treatment or special degreasing prior to activation to remove any dissolvable contamination. Porous surfaces may need two treatments of activator.
2. The activator will not dry and will remain active for up to 1 hour after application.
3. Apply the Loctite anaerobic product to one or both surfaces and assemble parts immediately.
4. Where possible, move surfaces in relation to each other for a few seconds on assembly to properly distribute the adhesive and for maximum activation.
5. Secure the assembly and await fixturing before any further handling.

Loctite Material Specification
LMS dated May 11, 1998. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

Storage
Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties. Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Conversions
(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
µm / 25.4 = inches
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP
Note
The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits. The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage
Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 1.1
1. Identification

Product name : Sikaflex®-521 UV

Supplier : Sika Corporation

201 Polito Avenue
Lyndhurst, NJ 07071
USA
www.sikausa.com

Telephone : (201) 933-8800
Telefax : (201) 804-1076
E-mail address : ehs@sika-corp.com
Emergency telephone : CHEMTREC: 800-424-9300
INTERNATIONAL: 703-527-3887

Recommended use of the chemical and restrictions on use : For further information, refer to product data sheet.

2. Hazards identification

GHS Classification

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

See Section 11 for more detailed information on health effects and symptoms.
There are no hazards not otherwise classified that have been identified during the classification process.
There are no ingredients with unknown acute toxicity used in a mixture at a concentration >= 1%.

3. Composition/information on ingredients

Hazardous ingredients

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

If inhaled : Move to fresh air.
In case of skin contact:
Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.

In case of eye contact:
Flush eyes with water as a precaution.
Remove contact lenses.
Keep eye wide open while rinsing.

If swallowed:
Clean mouth with water and drink afterwards plenty of water.
Do not induce vomiting without medical advice.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:
No known significant effects or hazards.

See Section 11 for more detailed information on health effects and symptoms.

Protection of first-aiders:
No hazards which require special first aid measures.

Notes to physician:
Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media:
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific extinguishing methods:
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for fire-fighters:
In the event of fire, wear self-contained breathing apparatus.

6. Accidental release measures

Environmental precautions:
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up:
Wipe up with absorbent material (e.g. cloth, fleece).
Keep in suitable, closed containers for disposal.

7. Handling and storage

Advice on safe handling:
For personal protection see section 8.
No special handling advice required.
Follow standard hygiene measures when handling chemical products.

Conditions for safe storage:
Keep container tightly closed in a dry and well-ventilated
8. Exposure controls/personal protection

Contains no substances with occupational exposure limit values.

**Engineering measures**

Use of adequate ventilation should be sufficient to control worker exposure to airborne contaminants. If the use of this product generates dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

**Personal protective equipment**

**Respiratory protection**

Use a properly fitted NIOSH approved air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.

**Hand protection**

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

**Eye protection**

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary.

**Skin and body protection**

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

**Hygiene measures**

Wash hands before breaks and immediately after handling the product.

Remove contaminated clothing and protective equipment before entering eating areas.

9. Physical and chemical properties

- **Appearance**: paste
- **Color**: various
- **Odor**: characteristic
Odor Threshold: No data available

Flash point: > 214 °F (> 101 °C)

Ignition temperature: No data available

Decomposition temperature: No data available

Lower explosion limit (Vol%): No data available

Upper explosion limit (Vol%): No data available

Flammability (solid, gas): No data available

Oxidizing properties: No data available

pH: Note: Not applicable

Melting point/range / Freezing point: No data available

Boiling point/boiling range: No data available

Vapor pressure: 0.01 mmHg (0.01 hpa)

Density: ca.1.40 g/cm³ at 68 °F (20 °C)

Water solubility: Note: insoluble

Partition coefficient: n-octanol/water: No data available

Viscosity, dynamic: Note: Not applicable

Viscosity, kinematic: Note: Not applicable

Relative vapor density: No data available

Evaporation rate: No data available

Burning rate: No data available

Volatile organic compounds (VOC) content: 14.4 g/l

10. Stability and reactivity

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: The product is chemically stable.

Possibility of hazardous reactions: Stable under recommended storage conditions.

Conditions to avoid: No data available

Incompatible materials: No data available
11. Toxicological information

Not classified based on available information.

**Skin corrosion/irritation**
Not classified based on available information.

**Serious eye damage/eye irritation**
Not classified based on available information.

**Respiratory or skin sensitization**
Skin sensitization: Not classified based on available information.
Respiratory sensitization: Not classified based on available information.

**Germ cell mutagenicity**
Not classified based on available information.

**Reproductive toxicity**
Not classified based on available information.

**STOT-single exposure**
Not classified based on available information.

**STOT-repeated exposure**
Not classified based on available information.

**Aspiration toxicity**
Not classified based on available information.

**Carcinogenicity**
Not classified based on available information.

**IARC**
Group 2B: Possibly carcinogenic to humans

**NTP**
Titanium dioxide 13463-67-7
Not applicable

Titanium dioxide (13463-67-7)

In lifetime inhalation studies of rats, airborne respirable-size titanium dioxide particles have seen shown to cause an increase in lung tumors at concentrations associated with substantial particle lung burdens and consequential pulmonary overload and inflammation. The potential for these adverse health effects appears to be closely related to the particle size and the amount of the exposed surface area that comes into contact with the lung. However, tests with other laboratory animals such as mice and hamsters, indicate that rats are significantly more susceptible to the pulmonary overload and inflammation that cause lung cancer. Epidemiology studies do not suggest an increased risk of cancer in humans from occupational exposure to titanium dioxide. Titanium dioxide has been characterized by IARC as possibly carcinogenic to humans (Group 2B) through inhalation (not ingestion). It has not been characterized as a potential carcinogen by either NTP or OSHA.

12. Ecological information

**Other information**
Do not empty into drains; dispose of this material and its container in a safe way.
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

13. Disposal considerations

Disposal methods
Waste from residues: Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT
Not dangerous goods

IATA
Not dangerous goods

IMDG
Not dangerous goods

Special precautions for user
No data available

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

15. Regulatory information

TSCA list: All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA304 Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards: No SARA Hazards
SARA 302: This material does not contain any components with a section 302 EHS TPQ.

SARA 313: The following components are subject to reporting levels established by SARA Title III, Section 313:
- Iron manganese oxide 75864-23-2 2.06 %

Clean Air Act

Ozone-Depletion Potential: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):
- Iron manganese oxide 75864-23-2 2.06 %

This product does not contain chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

California Prop 65: WARNING! This product contains a chemical known in the State of California to cause cancer.
WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

16. Other information

HMIS Classification

Caution: HMIS® rating is based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® rating is not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® rating is to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). Please note HMIS® attempts to convey full health warning information to all employees.

Notes to Reader

The information contained in this Safety Data Sheet applies only to the actual Sika Corporation ("Sika") product identified and described herein. This information is not intended to address, nor does it address the use or application of the identified Sika product in combination with any other material, product or process. All of the information set forth herein is based on technical data regarding the identified product that Sika believes to be reliable as of the date hereof. Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's current Product Data Sheet, product label and Safety Data Sheet for each Sika product, which are available at web site and/or telephone number listed in Section 1 of this SDS.
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All sales of Sika products are subject to its current terms and conditions of sale available at www.sikausa.com or 201-933-8800.

Revision Date 03/06/2017

Material number: 536536
SAFETY DATA SHEET

1. Identification

Covestro LLC
1 Covestro Circle
Pittsburgh, PA 15205
USA

No Canadian supplier identified, product must be ordered in order to receive the Canadian compliant SDS

Product Name: BAYMIDUR K 88 HV L
Material Number: 04432401
Chemical Family: Aromatic Isocyanate
Use: Di-/polyisocyanate components for the production of polyurethanes

2. Hazards Identification

GHS Classification
Acute toxicity (Inhalation): Category 4
Specific target organ toxicity - single exposure: Category 3 (Respiratory system)
Respiratory sensitisation: Category 1
Specific target organ toxicity - repeated exposure: Category 1 (Respiratory Tract)
Skin irritation: Category 2
Skin sensitisation: Category 1
Eye irritation: Category 2B

GHS Label Elements
Signal word: Danger

Hazard statements: Harmful if inhaled.
May cause respiratory irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Causes damage to organs (Respiratory Tract) through prolonged or
repeated exposure if inhaled.
Causes skin irritation.
May cause an allergic skin reaction.
Causes eye irritation.

Precautionary statements:

**Prevention:**
Avoid breathing dust, mist, gas, vapors or spray.
Do not eat, drink or smoke when using this product.
Wash skin and face thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves.
In case of inadequate ventilation wear respiratory protection. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134) or regional standards. For additional details, see section 8 of the SDS.

**Response:**
Get medical attention if you feel unwell.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical attention.
Wash contaminated clothing before reuse.
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical attention.
IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
If experiencing respiratory symptoms: Call a doctor or emergency medical facility (i.e. 911).

**Storage:**
Store locked up.
Store in a well-ventilated place. Keep container tightly closed.

**Disposal:**
Dispose of contents and container in accordance with existing federal, state, and local environmental control laws.

### 3. Composition/Information on Ingredients

**Hazardous Components**

<table>
<thead>
<tr>
<th>Weight Percent</th>
<th>Components</th>
<th>CAS-No.</th>
<th>Classification</th>
</tr>
</thead>
</table>

Material Name: BAYMIDUR K 88 HV L

Page: 2 of 14
<table>
<thead>
<tr>
<th>Percentage</th>
<th>Material Name</th>
<th>CAS Number</th>
<th>Toxicity and Effects</th>
</tr>
</thead>
</table>
| 54%        | Polymeric Diphenylmethane Diisocyanate (pMDI) | 9016-87-9 | Acute toxicity Category 4 Inhalation.  
Skin irritation Category 2.  
Eye irritation Category 2B.  
Respiratory sensitisation Category 1.  
Skin sensitisation Category 1.  
Specific target organ toxicity - single exposure Category 3 Respiratory system.  
Specific target organ toxicity - repeated exposure Category 1 Respiratory Tract. |
| 41%        | 4,4’-Diphenylmethane Diisocyanate (MDI)    | 101-68-8  | Acute toxicity Category 4 Inhalation.  
Skin irritation Category 2.  
Eye irritation Category 2B.  
Respiratory sensitisation Category 1.  
Skin sensitisation Category 1.  
Specific target organ toxicity - single exposure Category 3 Respiratory system.  
Specific target organ toxicity - repeated exposure Category 1 Respiratory Tract. |
| 4%         | 2,4’-Diphenylmethane Diisocyanate (MDI)    | 5873-54-1 | Acute toxicity Category 4 Inhalation.  
Skin irritation Category 2.  
Eye irritation Category 2B.  
Respiratory sensitisation Category 1.  
Skin sensitisation Category 1.  
Specific target organ toxicity - single exposure Category 3 Respiratory system.  
Specific target organ toxicity - repeated exposure Category 1 Inhalation Respiratory Tract. |
| <1%        | 2,2’-Diphenylmethane Diisocyanate          | 2536-05-2 | Acute toxicity Category 4 Inhalation.  
Skin irritation Category 2.  
Eye irritation Category 2B.  
Respiratory sensitisation Category 1.  
Skin sensitisation Category 1.  
Specific target organ toxicity - single exposure Category 3 Respiratory system.  
Specific target organ toxicity - repeated exposure Category 1 Inhalation Respiratory Tract. |

Values in the table above represent approximate percentages.

### 4. First Aid Measures

**Most Important Symptom(s)/Effect(s)**

**Acute:** Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below...
the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

Causes skin irritation with symptoms of reddening, itching, and swelling. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove. Contact with MDI can cause discoloration.

Causes eye irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing.

May cause irritation of the digestive tract. Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

**Delayed:** Symptoms affecting the respiratory tract can also occur several hours after overexposure.

**Eye Contact**
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Get medical attention.

**Skin Contact**
If direct skin contact with isocyanates occurs, immediately remove contaminated clothing and shoes. Wipe off the isocyanate product from the skin using dry towels or other similar absorbent fabric. If readily available, apply a polyglycol-based cleanser (e.g. Colorimetric Laboratories, Inc. (CLI) D-TAM™ Skin Cleanser) or corn oil. Wash with soap and warm water and pat dry. If a polyglycol-based cleanser is not available, wash with soap and warm water for 15 minutes. If available, use a wipe test pad to verify decontamination is complete (e.g. CLI SWYPE™). Get medical attention if irritation develops. Discard or wash contaminated clothing before reuse.

**Inhalation**
Move to an area free from further exposure. Extreme asthmatic reactions that may occur in sensitized persons can be life threatening. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours.

**Ingestion**
Do NOT induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

**Notes to Physician**
Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound. Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

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**5. Firefighting Measures**

**Suitable Extinguishing Media:** Dry chemical, Carbon dioxide (CO2), Foam, water spray for large

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Page: 4 of 14
Fires.

**Unsuitable Extinguishing Media:** High volume water jet

**Fire Fighting Procedure**
Firefighters should wear NFPA compliant structural firefighting protective equipment, including self-contained breathing apparatus and NFPA compliant helmet, hood, boots and gloves. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse. During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

**Hazardous Decomposition Products**
By Fire and High Heat: Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke, Isocyanate, Isocyanic Acid, Other undetermined compounds

**Unusual Fire/Explosion Hazards**
Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (CO2 formed). Use cold-water spray to cool fire-exposed containers to minimize the risk of rupture. Large fires can be extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous.

### 6. Accidental Release Measures

**Spill and Leak Procedures**
Implement site emergency response plan. Evacuate non-emergency personnel. The magnitude of the evacuation depends upon the quantity released, site conditions, and the ambient temperature. Isolate the area and prevent access of unauthorized personnel. Notify management. Call CHEMTREC at 1-800-424-9300 for assistance and advice.

Wear necessary personal protective equipment (PPE) as specified in the SDS or the site emergency response plan. Ventilate and remove ignition sources. Control the source of the leak. Contain the released material by damming, diking, retaining, or diverting into an appropriate containment area. Absorb or pump off as much of the spilled material as possible. When using absorbent, completely cover the spill area with suitable absorbent material (e.g., vermiculite, kitty litter, Oil-Dri®, etc…). Allow for the absorbent material to absorb the spilled liquid. Shovel the absorbent material into an approved metal container (i.e., 55-gallon salvage drum). Do not fill the container more than 2/3 full to allow for expansion, and do not tighten the lid on the container. Repeat application of absorbent material until all liquid has been removed from the surface. For spills involving a solid product, remove mechanically (sweep up, vacuum, shovel etc.) and collect and place into an approved metal container.

Decontaminate the spill surface area using a neutralization solution (see list of solutions on the SDS); scrubbing the surface with a broom or brush helps the decontamination solution to penetrate into porous surfaces. Wait at least 15 minutes after first application of the neutralization solution. Cover the area with absorbent material and shovel this into an approved metal container. Residual surface contamination can be checked using a wipe test pad to verify decontamination is complete (e.g. CLI Surface Swype™). If the wipe test pad demonstrates that isocyanate remains on the surface (red color on pad), repeat applications of neutralization solution, with scrubbing, followed by absorbent until the surface is decontaminated (no color change on wipe pad). Apply lid loosely to metal waste container (do not tighten the lid because carbon dioxide gas and heat can be generated from the neutralization process). With the lid still loosely in place, move the container to an isolated, well-ventilated area to allow release of carbon dioxide. After 72 hours, seal the container, and properly dispose of the waste material and any contaminated equipment (i.e., broom or brush) in accordance with existing federal, state and local regulations.
**Additional Spill Procedures/Neutralization**

Products or product mixtures that have been shown to be effective neutralization solutions for decontaminating surfaces, tools, or equipment that have been in contact with an isocyanate include, but are not limited to:

- Colorimetric Laboratories, Inc. (CLI): 1-847-803-3737
  - Isocyanate Decontamination Solution
- Spartan Chemical Company: 1-800-537-8990
  - Spartan® ShineLine Emulsifier Plus (stripping solution)
  - Spartan® SC-200 Heavy Duty Cleaner
- ZEP Commercial Heavy Duty Floor Stripper
- A mixture of 90% water, 10% non-ionic surfactant (e.g. Plurafac SL-62, Tergitol TMN-10)
- A mixture of 75% water, 20% non-ionic surfactant, and 5% n-propanol
- A mixture of 80% water, 10% non-ionic surfactant, 5% isopropanol, 5% ammonium hydroxide (household ammonia)

For more information about neutralization solutions, please refer to spill cleanup and neutralization information available on Covestro’s Product Safety First website. www.productsafetyfirst.covestro.com

Note: Always wear proper PPE when cleaning up an isocyanate spill or when decontaminating surfaces, tools, or equipment using a neutralization solution. It may take two or more applications of the neutralization solution to decontaminate the surface. Residual surface contamination can be checked using a surface wipe method such as the CLI Swype™ pad.

---

### 7. Handling and Storage

**Handling/Storage Precautions**

Do not breathe vapors, mists, or dusts. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash thoroughly after handling. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.

**Storage Period:**
6 Months

**Storage Temperature**

Minimum: 10 °C (50 °F)

Maximum: 30 °C (86 °F)

**Storage Conditions**

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200.

**Substances to Avoid**

Water, Amines, Strong bases, Alcohols, Copper alloys

---

### 8. Exposure Controls/Personal Protection
The recommendations in this section should not be a substitute for a personal protective equipment (PPE) assessment performed by the employer.

**Exposure Limits**

4,4’-Diphenylmethane Diisocyanate (MDI) (101-68-8)

**US. ACGIH Threshold Limit Values**

- Time weighted average 0.005 ppm

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

- Ceiling Limit Value 0.02 ppm, 0.2 mg/m³

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

Please refer to the exposure limits legislated for the province in which the substance will be used.

**Industrial Hygiene/Ventilation Measures**

Local exhaust should be used to maintain levels below the TLV whenever MDI is heated, sprayed, or aerosolized. Standard reference sources regarding industrial ventilation (e.g., ACGIH Industrial Ventilation Manual) should be consulted for guidance about adequate ventilation. To ensure that published exposure limits have not been exceeded, monitoring for airborne diisocyanate should become part of the overall employee exposure characterization program. NIOSH, OSHA, Covestro, and others have developed sampling and analytical methods. Covestro methods can be made available, upon request.

**Respiratory Protection**

Airborne MDI concentrations greater than the ACGIH TLV-TWA (TLV) or OSHA PEL-C (PEL) can occur in inadequately ventilated environments when MDI is sprayed, aerosolized, or heated. In such cases, respiratory protection must be worn. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134). The type of respiratory protection available includes (1) an atmosphere-supplying respirator such as a self-contained breathing apparatus (SCBA) or a supplied air respirator (SAR) in the positive pressure or continuous flow mode, or (2) an air-purifying respirator (APR). If an APR is selected then a change out schedule, based on objective information or data that will ensure that the cartridges are changed out before the end of their service life, must be developed and implemented. The basis for the change out schedule must be described in the written respirator program. Further, if an APR is selected, the airborne diisocyanate concentration must be no greater than 10 times the TLV or PEL. The recommended APR cartridge is an organic vapor/particulate filter combination cartridge (OV/P100).

**Hand Protection**

Ensure gloves remain in good condition during use and replace if any deterioration is observed.

Gloves should be worn., Nitrile rubber showed excellent resistance., Butyl rubber, neoprene and PVC are also effective.

**Eye Protection**

When directly handling liquid product, eye protection is required. Examples of eye protection include a chemical safety goggle, or chemical safety goggle in combination with a full face shield when there is a greater risk of splash.

**Skin Protection**

Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact., Animal tests and other research indicate that
skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction. This data reinforces the need to prevent direct skin contact with isocyanates.

**Medical Surveillance**

All applicants who are assigned to an isocyanate work area should undergo a pre-placement medical evaluation. A history of eczema or respiratory allergies such as hay fever, are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult asthma should be restricted from work with isocyanates. Applicants with a history of prior isocyanate sensitization should be excluded from further work with isocyanates. A comprehensive annual medical surveillance program should be instituted for all employees who are potentially exposed to diisocyanates. Once a worker has been diagnosed as sensitized to any isocyanate, no further exposure can be permitted. Refer to the Covestro pamphlet (Medical Surveillance Program for Isocyanate Workers) for additional guidance.

**Additional Protective Measures**

Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of this product. Follow all label instructions.

---

### 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State of Matter:</strong></td>
<td>liquid</td>
</tr>
<tr>
<td><strong>Color:</strong></td>
<td>Dark brown, Black</td>
</tr>
<tr>
<td><strong>Odor:</strong></td>
<td>earthy, musty</td>
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<tr>
<td><strong>Odor Threshold:</strong></td>
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<tr>
<td><strong>pH:</strong></td>
<td>No Data Available</td>
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<tr>
<td><strong>Boiling Point:</strong></td>
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<td><strong>Flash Point:</strong></td>
<td>199 °C (390.2 °F) (ASTM D 93)</td>
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<tr>
<td><strong>Evaporation Rate:</strong></td>
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<td><strong>Lower Explosion Limit:</strong></td>
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<tr>
<td><strong>Upper Explosion Limit:</strong></td>
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</tr>
<tr>
<td><strong>Vapor Pressure:</strong></td>
<td>&lt; 0.0001 mmHg @ 25 °C (77 °F)</td>
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<tr>
<td><strong>Vapor Density:</strong></td>
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</tr>
<tr>
<td><strong>Density:</strong></td>
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<tr>
<td><strong>Relative Vapor Density:</strong></td>
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<td><strong>Specific Gravity:</strong></td>
<td>1.24 @ 25 °C (77 °F)</td>
</tr>
<tr>
<td><strong>Solubility in Water:</strong></td>
<td>Insoluble - Reacts slowly with water to liberate CO2 gas</td>
</tr>
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<td><strong>Partition Coefficient:</strong></td>
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<td><strong>Auto-ignition Temperature:</strong></td>
<td>&gt; 500 °C (&gt; 932 °F) (DIN 51794)</td>
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<tr>
<td><strong>Decomposition Temperature:</strong></td>
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<td><strong>Dynamic Viscosity:</strong></td>
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<td><strong>Kinematic Viscosity:</strong></td>
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<tr>
<td><strong>Pour point:</strong></td>
<td>-24 °C (-11.2 °F) (DIN 51556)</td>
</tr>
<tr>
<td><strong>Self Ignition:</strong></td>
<td>not applicable</td>
</tr>
</tbody>
</table>

---

### 10. Stability and Reactivity

**Hazardous Reactions**

Contact with moisture, other materials that react with isocyanates, or temperatures above 350 F (177 C), may cause polymerization.

**Materials to Avoid**
Water, Amines, Strong bases, Alcohols, Copper alloys

**Hazardous Decomposition Products**
By Fire and High Heat: Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke, Isocyanate, Isoyclic Acid, Other undetermined compounds

# 11. Toxicological Information

## Likely Routes of Exposure:
- Skin Contact
- Inhalation
- Eye Contact

## Health Effects and Symptoms

**Acute:** Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

Causes skin irritation with symptoms of reddening, itching, and swelling. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove. Contact with MDI can cause discoloration.

Causes eye irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing.

May cause irritation of the digestive tract. Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

**Chronic:** As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to isocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to isocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to isocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

Prolonged contact with skin can cause reddening, swelling, rash, and, in some cases, skin sensitization. Animal tests and other research indicate that skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction. This data reinforces the need to prevent direct skin contact with isocyanates.

Prolonged vapor contact with the eyes may cause conjunctivitis.

**Delayed:** Symptoms affecting the respiratory tract can also occur several hours after overexposure.

**Toxicity Data for: BAYMIDUR K 88 HV L**
Toxicity data based on polymeric MDI (a mixture of monomers and higher molecular weight oligomers).

<table>
<thead>
<tr>
<th>Material Name: BAYMIDUR K 88 HV L</th>
<th>04432401</th>
</tr>
</thead>
</table>

Page: 9 of 14
Acute Oral Toxicity
LD50: > 2,000 mg/kg (rat, male/female)

Acute Inhalation Toxicity
LC50: 0.49 mg/l, 490 mg/m3, 4 h, aerosol (rat)
The test atmosphere generated in the animal study is not representative of workplace environments, how
the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test
result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and the
weight of the evidence, a modified classification for acute inhalation toxicity is justified.

Acute Dermal Toxicity
LD50: > 9,400 mg/kg (rabbit, male/female) (OECD Test Guideline 402)

Skin Irritation
rabbit, Slightly irritating

Repeated Dose Toxicity
90 Days, inhalation: NOAEL: 1 mg/m3, (rat, Male/Female, 6 hrs/day 5 days/week)
Irritation to lungs and nasal cavity.

2 years, inhalation: NOAEL: 0.2, (rat, Male/Female, 6 hrs/day 5 days/week)
Irritation to lungs and nasal cavity.

Mutagenicity
Genetic Toxicity in Vitro:
Bacterial - gene mutation assay: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Carcinogenicity
rat, Male/Female, inhalation, 2 Years, 6 hrs/day 5 days/week
LOAEL: 6mg/l

Polymeric MDI has been classified as IARC Group 3 (“Not classifiable as to its carcinogenicity to
humans”) (1999) indicating there is inadequate evidence available to describe the carcinogenic potential.
Epidemiological studies found no association between isocyanates and cancer. In chronic exposure studies
in rodents, pMDI produced tumors only at the highest exposure level of 6 mg/m3. This exposure level is
significantly above the TLV for MDI (0.051 mg/m3). Based on the weight of the evidence, a determination
of not classified for carcinogenicity is justified.

Developmental Toxicity/Teratogenicity
rat, female, inhalation, gestation days 6-15, 6 hrs/day, NOAEL (teratogenicity): 12 mg/m3, NOAEL
(maternal): 4 mg/m3
No Teratogenic effects observed at doses tested., Fetotoxicity seen only with maternal toxicity.

Toxicity Data for: Polymeric Diphenylmethane Diisocyanate (pMDI)

Toxicity Note
See data above for polymeric MDI.

Toxicity Data for: 4,4’-Diphenylmethane Diisocyanate (MDI)

Acute Oral Toxicity
LD50: > 7,616 mg/kg (rat) (OECD Test Guideline 401)

Acute Inhalation Toxicity
LC50: 0.368 mg/l, 4 h, dust/mist (rat, male) (OECD Test Guideline 403)
The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

**Acute Dermal Toxicity**
LD50: > 9,400 mg/kg (rabbit, male/female) (OECD Test Guideline 402)
Studies of a comparable product.

**Skin Irritation**
rabbit, Draize Test, Slightly irritating
Human, irritating

**Eye Irritation**
rabbit, Draize, Moderately irritating
Human, irritating

**Sensitization**
Skin sensitization (local lymph node assay (LLNA)): positive (Mouse, OECD Test Guideline 429)
Respiratory sensitization: positive (Guinea pig)

**Repeated Dose Toxicity**
90 Days, inhalation: NOAEL: 0.3 mg/m3, (rat, Male/Female, 18 hrs/day, 5 days/week)
Irritation to lungs and nasal cavity.
(Human)
Irritation to lungs and nasal cavity.

**Mutagenicity**
Genetic Toxicity in Vitro:
Ames: (Salmonella typhimurium, Metabolic Activation: with/without)
Positive and negative results were reported. The use of certain solvents which rapidly hydrolyze diisocyanates is suspected of producing the positive mutagenicity results.

Genetic Toxicity in Vivo:
Micronucleus Assay: (Mouse)
negative

Micronucleus test: negative (rat, male, Inhalative (exposure period: 3x1h/day over 3 weeks))
negative

**Carcinogenicity**
rat, Female, inhalation, 2 Years, 17 hrs/day, 5 days/week negative

**Other Relevant Toxicity Information**
May cause irritation of respiratory tract.

**Toxicity Data for: 2,4'-Diphenylmethane Diisocyanate (MDI)**

**Toxicity Note**
See data above for polymeric MDI.
Toxicity Data for: 2,2’-Diphenylmethane Diisocyanate

Toxicity Note
See data above for polymeric MDI.

Carcinogenicity:
No carcinogenic substances as defined by IARC, NTP and/or OSHA

12. Ecological Information

Ecological Data for: BAYMIDUR K 88 HV L

Ecotoxicity data based on polymeric MDI (a mixture of monomers and higher molecular weight oligomers).

Biodegradation
0 %, Exposure time: 28 d, i.e. not degradable

Bioaccumulation
Oncorhynchus mykiss (rainbow trout), Exposure time: 112 d, < 1 BCF
Does not bioaccumulate.

Acute and Prolonged Toxicity to Fish
LC0: > 1,000 mg/l (Danio rerio (zebra fish), 96 h)
LC0: > 3,000 mg/l (Oryzias latipes (Orange-red killifish), 96 h)

Acute Toxicity to Aquatic Invertebrates
EC50: > 1,000 mg/l (Water flea (Daphnia magna), 24 h)

Toxicity to Aquatic Plants
NOEC: 1,640 mg/l, End Point: growth (Green algae (Scenedesmus subspicatus), 72 h)

Toxicity to Microorganisms
EC50: > 100 mg/l, (activated sludge, 3 h)

Ecological Data for Polymeric Diphenylmethane Diisocyanate (pMDI)

Additional Ecotoxicological Remarks
See data above for polymeric MDI.

Ecological Data for 4,4’-Diphenylmethane Diisocyanate (MDI)

Acute and Prolonged Toxicity to Fish
LC50: > 500 mg/l (Zebra fish (Brachydanio rerio), 24 h)

Acute Toxicity to Aquatic Invertebrates
EC50: > 500 mg/l (Water flea (Daphnia magna), 24 h)

Ecological Data for 2,4’-Diphenylmethane Diisocyanate (MDI)

Additional Ecotoxicological Remarks
See data above for polymeric MDI.

Ecological Data for 2,2’-Diphenylmethane Diisocyanate

Additional Ecotoxicological Remarks
See data above for polymeric MDI.
13. Disposal Considerations

**Waste Disposal Method**
Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method.

**Empty Container Precautions**
Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse without thorough commercial cleaning and reconditioning. If container is to be disposed, ensure all product residues are removed prior to disposal.

14. Transportation Information

**Land transport (TDG)**
Non-Regulated

**Sea transport (IMDG)**
Non-Regulated

**Air transport (ICAO/IATA)**
Non-Regulated

15. Regulatory Information

**DSL Status**
All components of this product are on the Canadian DSL.

16. Other Information

The method of hazard communication for Covestro LLC is comprised of product labels and safety data sheets. Safety data sheets for all of our products and general product declarations are available for download at www.productsafetyfirst.covestro.com.

Contact: Product Safety Department
Telephone: (412) 413-2835
SDS Number: 112000015557
Version Date: 01/29/2018
SDS Version: 1.4

Information contained in this SDS is believed to be accurate but is furnished without warranty, express or implied, including warranties of merchantability or fitness for a particular purpose. The information relates only to the specific material designated herein. Covestro LLC assumes no legal responsibility for use of or reliance upon the information in this SDS and such information shall in no case be considered a part of our terms and conditions of sale. The user is responsible for determining whether the Covestro product is
suitable for user’s method of use or application. Covestro is not liable for any failure to observe the precautionary measures described in this SDS or for any misuse of the product.
1. Identification

Covestro LLC
1 Covestro Circle
Pittsburgh, PA 15205
USA

TRANSPORTATION EMERGENCY
CALL CHEMTREC: (800) 424-9300
For Bulk TDI Products (ERP 2-1980): (877) 378-7745

NON-TRANSPORTATION
Emergency Phone, call CHEMTREC: Call Chemtrec
Information Phone: (844) 646-0545

No Canadian supplier identified, product must be ordered in order to receive the Canadian compliant SDS

Product Name: BAYFLEX 245-A-35
Material Number: 81178313
Chemical Family: Polyol System
Use: Polyol components for the production of polyurethanes

2. Hazards Identification

This product is not considered hazardous according to WHMIS 2015.

3. Composition/Information on Ingredients

Hazardous Components

There are no hazardous components above the relevant concentration limits according to WHMIS 2015.

4. First Aid Measures

Eye Contact
In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact
In case of skin contact, wash affected areas with soap and water. Immediately remove contaminated clothing and shoes. Get medical attention if irritation develops.

Inhalation
If inhaled, remove to fresh air. Get medical attention if irritation develops.

**Ingestion**
If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

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### 5. Firefighting Measures

**Suitable Extinguishing Media:** Carbon dioxide (CO2), Dry chemical, Foam, water spray for large fires.

**Unsuitable Extinguishing Media**
No Data Available

**Fire Fighting Procedure**
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture.

**Hazardous Decomposition Products**
By Fire: Carbon Dioxide; Carbon Monoxide Other hazardous decomposition products may be formed.

---

### 6. Accidental Release Measures

**Spill and Leak Procedures**
Cover spill with inert material (e.g., dry sand or earth) and collect for proper disposal. Use appropriate personal protective equipment during clean up. Evacuate and keep unnecessary people out of spill area.

---

### 7. Handling and Storage

**Handling/Storage Precautions**
Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Keep container closed when not in use. Material is hygroscopic and may absorb small amounts of atmospheric moisture. If contamination with isocyanates is suspected, do not reseal containers. Avoid breathing dust, vapor, or mist. Avoid contact with eyes. Avoid contact with skin or clothing.

**Storage Conditions**
Store separate from food products.

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200.

**Substances to Avoid**
Oxidizing agents, Isocyanates

---

### 8. Exposure Controls/Personal Protection

The recommendations in this section should not be a substitute for a personal protective equipment (PPE) assessment performed by the employer.

**Exposure Limits**

---

Material Name: BAYFLEX 245-A-35
Country specific exposure limits have not been established or are not applicable

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

Please refer to the exposure limits legislated for the province in which the substance will be used.

**Industrial Hygiene/Ventilation Measures**
Use local and general exhaust ventilation to control levels of exposure. Thermal processing operations should be ventilated to control gases and fumes given off during processing.

**Respiratory Protection**
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. In case of insufficient ventilation, wear suitable respiratory equipment. NIOSH approved, air-purifying respirator with organic vapor cartridges and P-95 filters. At higher concentrations or under uncertain conditions a respirator with independent air supply must be used.

**Hand Protection**
Ensure gloves remain in good condition during use and replace if any deterioration is observed.

Permeation resistant gloves, butyl-rubber, Nitrile rubber, Neoprene gloves

**Eye Protection**
Chemical safety goggles or safety glasses with side-shields.

**Skin Protection**
Wear as appropriate, Impervious protective clothing.

**Additional Protective Measures**
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

### 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of Matter</td>
<td>liquid</td>
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<tr>
<td>Color</td>
<td>Light brown</td>
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<tr>
<td>Odor</td>
<td>slight smell of amine</td>
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<td>pH</td>
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<td>Flash Point</td>
<td>241 °C (465.8 °F) @ 1,013 hPa (calculated)</td>
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<td>Lower Explosion Limit</td>
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<td>Vapor Pressure</td>
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<td>Density</td>
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<td>Relative Vapor Density</td>
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<td>Specific Gravity</td>
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<tr>
<td>Solubility in Water</td>
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<tr>
<td>Partition Coefficient: n-octanol/water</td>
<td>No Data Available</td>
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</tbody>
</table>
Material Name: BAYFLEX 245-A-35

**Auto-ignition Temperature:** 350 °C (662 °F) (calculated)

**Decomposition Temperature:** Not established

**Dynamic Viscosity:** 18,400 - 18,600 mPa.s @ 20 °C (68 °F)

**Kinematic Viscosity:** No Data Available

**Pour point:** 200 °C (392 °F) (calculated)

**Self Ignition:** not applicable

### 10. Stability and Reactivity

**Hazardous Reactions**
Hazardous polymerisation does not occur.

**Stability**
Stable

**Materials to Avoid**
Oxidizing agents, Isocyanates

**Conditions to Avoid**
Avoid heat, flames, sparks and other sources of ignition.

**Hazardous Decomposition Products**
By Fire: Carbon Dioxide; Carbon Monoxide; Other hazardous decomposition products may be formed.

### 11. Toxicological Information

**Likely Routes of Exposure:** Skin Contact, Eye Contact

**Toxicity Data for: BAYFLEX 245-A-35**

**Acute Oral Toxicity**
Acute toxicity estimate: > 5,000 mg/kg (Calculation method)

**Carcinogenicity:**
No carcinogenic substances as defined by IARC, NTP and/or OSHA

### 12. Ecological Information

**Ecological Data for: BAYFLEX 245-A-35**
No data available for this product.

### 13. Disposal Considerations

**Waste Disposal Method**
Waste disposal should be in accordance with existing federal, state and local environmental control laws.

**Empty Container Precautions**
Recondition or dispose of empty container in accordance with governmental regulations.

14. Transportation Information

Land transport (TDG)
Non-Regulated

Sea transport (IMDG)
Non-Regulated

Air transport (ICAO/IATA)
Non-Regulated

15. Regulatory Information

DSL Status

All components of this product are on the Canadian DSL.

16. Other Information

The method of hazard communication for Covestro LLC is comprised of product labels and safety data sheets. Safety data sheets for all of our products and general product declarations are available for download at www.productsafetyfirst.covestro.com.

Contact: Product Safety Department
Telephone: (412) 413-2835
SDS Number: 112000049027
Version Date: 08/25/2017
SDS Version: 1.0

Information contained in this SDS is believed to be accurate but is furnished without warranty, express or implied, including warranties of merchantability or fitness for a particular purpose. The information relates only to the specific material designated herein. Covestro LLC. assumes no legal responsibility for use of or reliance upon the information in this SDS and such information shall in no case be considered a part of our terms and conditions of sale. The user is responsible for determining whether the Covestro product is suitable for user’s method of use or application. Covestro is not liable for any failure to observe the precautionary measures described in this SDS or for any misuse of the product.
SAFETY DATA SHEET
MA530 ADHESIVE

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name MA530 ADHESIVE

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Adhesive.

1.3. Details of the supplier of the safety data sheet

Supplier
ITW Performance Polymers
Bay 150
Shannon Industrial Estate
Co. Clare
Ireland
V14 DF82
353(61)771500
353(61)471285
mail@itwpp.com

1.4. Emergency telephone number

Emergency telephone +44(0)1235 239 670 (24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Flam. Liq. 2 - H225

Health hazards Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1 - H317 STOT SE 3 - H335

Environmental hazards Not Classified

2.2. Label elements

Pictogram

Signal word Danger

Hazard statements H225 Highly flammable liquid and vapour.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
MA530 ADHESIVE

Precautionary statements
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing vapour/ spray.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.

Contains
METHYL METHACRYLATE, MALEIC ACID, DODECYL METHACRYLATE, METHOXY POLYETHYLENE GLYCOL METHACRYLATE, tert-butyl hydroperoxide

Supplementary precautionary statements
P240 Ground/ bond container and receiving equipment.
P241 Use explosion-proof electrical equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P264 Wash contaminated skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P302+P352 IF ON SKIN: Wash with plenty of water.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER/ doctor if you feel unwell.
P321 Specific treatment (see medical advice on this label).
P332+P313 If skin irritation occurs: Get medical advice/ attention.
P337+P313 If eye irritation persists: Get medical advice/ attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/ container in accordance with national regulations.

2.3. Other hazards
This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

<table>
<thead>
<tr>
<th>METHYL METHACRYLATE</th>
<th>30-60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 80-62-6</td>
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</tr>
<tr>
<td>EC number: 201-297-1</td>
<td></td>
</tr>
<tr>
<td>REACH registration number: 01-2119452498-28-0000</td>
<td></td>
</tr>
</tbody>
</table>

Classification
Flam. Liq. 2 - H225
Skin Irrit. 2 - H315
Skin Sens. 1 - H317
STOT SE 3 - H335
## MA530 ADHESIVE

### METHOXY POLYETHYLENE GLYCOL METHACRYLATE 5-10%

**CAS number:** 26915-72-0

**Classification**
- Skin Irrit. 2 - H315
- Eye Irrit. 2 - H319
- Skin Sens. 1 - H317
- STOT SE 3 - H335

### MALEIC ACID 5-10%

**CAS number:** 110-16-7

**Classification**
- Acute Tox. 4 - H302
- Skin Irrit. 2 - H315
- Eye Irrit. 2 - H319
- Skin Sens. 1 - H317
- STOT SE 3 - H335

### DODECYL METHACRYLATE 5-10%

**CAS number:** 142-90-5

**EC number:** 205-570-6

**M factor (Acute)** = 1

**M factor (Chronic)** = 1

**Classification**
- Skin Irrit. 2 - H315
- Eye Irrit. 2 - H319
- STOT SE 3 - H335
- Aquatic Acute 1 - H400
- Aquatic Chronic 1 - H410

### tert-butyl hydroperoxide <1%

**CAS number:** 75-91-2

**Classification**
- Flam. Liq. 3 - H226
- Org. Perox. C - H242
- Acute Tox. 3 - H301
- Acute Tox. 4 - H312
- Acute Tox. 4 - H332
- Skin Corr. 1C - H314
- Eye Dam. 1 - H318
- Skin Sens. 1 - H317
- Aquatic Chronic 3 - H412

The full text for all hazard statements is displayed in Section 16.

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures
MA530 ADHESIVE

**General information**
Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention.

**Inhalation**
Remove affected person from source of contamination. If breathing stops, provide artificial respiration. Get medical attention.

**Ingestion**
DO NOT induce vomiting. Get medical attention immediately. Never give anything by mouth to an unconscious person. Do not induce vomiting.

**Skin contact**
Rinse immediately with plenty of water. Remove contaminated clothing. Get medical attention if irritation persists after washing.

**Eye contact**
Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention if irritation persists after washing. Show this Safety Data Sheet to the medical personnel.

4.2. Most important symptoms and effects, both acute and delayed

**General information**
The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

4.3. Indication of any immediate medical attention and special treatment needed

**Notes for the doctor**
No specific recommendations. If in doubt, get medical attention promptly.

### SECTION 5: Firefighting measures

5.1. Extinguishing media

**Suitable extinguishing media**
Extinguish with the following media: Carbon dioxide (CO2). Dry chemicals. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out.

5.2. Special hazards arising from the substance or mixture

**Specific hazards**
Containers can burst violently or explode when heated, due to excessive pressure build-up.

5.3. Advice for firefighters

**Protective actions during firefighting**
Avoid breathing fire gases or vapours. Keep up-wind to avoid fumes.

**Special protective equipment for firefighters**
Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

### SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions**
Warn everybody of potential hazards and evacuate if necessary.

6.2. Environmental precautions

**Environmental precautions**
Avoid discharge into drains or watercourses or onto the ground. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body. The product is flammable. Heating may generate flammable vapours.

6.3. Methods and material for containment and cleaning up

**Methods for cleaning up**
Absorb spillage with inert, damp, non-combustible material. Flush contaminated area with plenty of water. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

6.4. Reference to other sections
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Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. See Section 11 for additional information on health hazards.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Do not use in confined spaces without adequate ventilation and/or respirator. Provide adequate ventilation. Avoid inhalation of vapours. Use approved respirator if air contamination is above an acceptable level. Earth container and transfer equipment to eliminate sparks from static electricity.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Take precautionary measures against static discharges. Store in tightly-closed, original container in a dry, cool and well-ventilated place. Avoid heat, flames and other sources of ignition. Store away from incompatible materials (see Section 10).

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

METHYL METHACRYLATE

Long-term exposure limit (8-hour TWA): WEL 50 ppm  208 mg/m³
Short-term exposure limit (15-minute):  WEL 100 ppm  416 mg/m³
WEL = Workplace Exposure Limit

Ingredient comments WEL = Workplace Exposure Limits

8.2. Exposure controls

Protective equipment

Appropriate engineering controls Provide adequate ventilation.

Eye/face protection The following protection should be worn: Chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. The selected gloves should have a breakthrough time of at least 8 hours. To protect hands from chemicals, gloves should comply with European Standard EN374.

Hygiene measures Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash station and safety shower. Wash contaminated clothing before reuse. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Avoid heat, flames and other sources of ignition.
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Respiratory protection

In confined or poorly-ventilated spaces, a supplied-air respirator must be worn. Respirator selection must be based on exposure levels, the hazards of the product and the safe working limits of the selected respirator. Wear a respirator fitted with the following cartridge: Organic vapour filter. Gas filter, type A2. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140.

SECTION 9: Physical and Chemical Properties

<table>
<thead>
<tr>
<th>9.1. Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
</tr>
<tr>
<td><strong>Colour</strong></td>
</tr>
<tr>
<td><strong>Odour</strong></td>
</tr>
<tr>
<td><strong>Melting point</strong></td>
</tr>
<tr>
<td><strong>Initial boiling point and range</strong></td>
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<tr>
<td><strong>Flash point</strong></td>
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<tr>
<td><strong>Evaporation rate</strong></td>
</tr>
<tr>
<td><strong>Upper/lower flammability or explosive limits</strong></td>
</tr>
<tr>
<td><strong>Vapour pressure</strong></td>
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<tr>
<td><strong>Vapour density</strong></td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>9.2. Other information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Volatile organic compound</strong></td>
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</table>

SECTION 10: Stability and reactivity

<table>
<thead>
<tr>
<th>10.1. Reactivity</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>10.2. Chemical stability</th>
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<tr>
<td><strong>Stability</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>10.3. Possibility of hazardous reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Possibility of hazardous reactions</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10.4. Conditions to avoid</th>
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</thead>
<tbody>
<tr>
<td><strong>Conditions to avoid</strong></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>10.5. Incompatible materials</th>
</tr>
</thead>
</table>

| 10.6. Hazardous decomposition products |
MA530 ADHESIVE

Hazardous decomposition products

Oxides of carbon. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral
ATE oral (mg/kg) 37,037.0

Inhalation
Vapours may irritate throat/respiratory system. Symptoms following overexposure may include the following: Headache. Dizziness. Drowsiness. Vapour may irritate respiratory system/lungs. Prolonged inhalation of high concentrations may damage respiratory system. May cause sensitisation by inhalation.

Ingestion
May cause stomach pain or vomiting. May cause internal injury. May cause nausea, headache, dizziness and intoxication.

Skin contact
Irritating to skin. Repeated exposure may cause skin dryness or cracking. May cause sensitisation by skin contact. The product contains a small amount of sensitising substance. May cause sensitisation or allergic reactions in sensitive individuals.

Eye contact
Irritating to eyes. Irritation, burning, lachrymation, blurred vision after liquid splash.

Acute and chronic health hazards
Irritating to skin. Irritating to eyes. Prolonged or repeated exposure may cause severe irritation. May cause sensitisation by skin contact. May cause sensitisation by inhalation.

Route of entry
Inhalation Skin absorption Ingestion. Skin and/or eye contact

Target organs
Eyes Skin Respiratory system, lungs DIGESTIVE SYSTEM. Liver Kidneys Irritation of nose, throat and airway.

Medical considerations
Chronic respiratory and obstructive airway diseases. Skin disorders and allergies.

tert-butyl hydroperoxide

Acute toxicity - oral
ATE oral (mg/kg) 100.0

Acute toxicity - dermal
ATE dermal (mg/kg) 1,100.0

Acute toxicity - inhalation
ATE inhalation (gases ppm) 4,500.0
ATE inhalation (vapours mg/l) 11.0
ATE inhalation (dusts/mists mg/l) 1.5

SECTION 12: Ecological Information

Ecotoxicity
Avoid release to the environment.

12.1. Toxicity

Toxicity
Very toxic to aquatic organisms.

12.2. Persistence and degradability
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**Persistence and degradability**  
The degradability of the product is not known.

**12.3. Bioaccumulative potential**

**Bioaccumulative potential**  
No data available on bioaccumulation.

**12.4. Mobility in soil**

**Mobility**  
Avoid discharge into drains or watercourses or onto the ground.

**12.5. Results of PBT and vPvB assessment**

**Results of PBT and vPvB assessment**  
This product does not contain any substances classified as PBT or vPvB.

**12.6. Other adverse effects**

**Other adverse effects**  
Not available.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

**General information**  
When handling waste, the safety precautions applying to handling of the product should be considered. Waste is classified as hazardous waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

**Disposal methods**  
Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

### SECTION 14: Transport information

**General**  
No other information known.

#### 14.1. UN number

**UN No. (ADR/RID)**  
1133

**UN No. (IMDG)**  
1133

**UN No. (ICAO)**  
1133

#### 14.2. UN proper shipping name

**Proper shipping name (ADR/RID)**  
ADHESIVES

**Proper shipping name (IMDG)**  
ADHESIVES

**Proper shipping name (ICAO)**  
ADHESIVES

**Proper shipping name (ADN)**  
ADHESIVES

#### 14.3. Transport hazard class(es)

**ADR/RID class**  
3

**ADR/RID label**  
3

**IMDG class**  
3

**ICAO class/division**  
3
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14.4. Packing group
ADR/RID packing group  II
IMDG packing group  II
ICAO packing group  II

14.5. Environmental hazards
Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user
EmS  F-E, S-D
Emergency Action Code  3YE
Hazard Identification Number
(ADR/RID)  33

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No information required.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.2. Chemical safety assessment
No chemical safety assessment has been carried out.

SECTION 16: Other information

Revision date  05/04/2018
Revision  13
Supersedes date  18/01/2018

Hazard statements in full
H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H242 Heating may cause a fire.
H301 Toxic if swallowed.
H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.
MA530 ADHESIVE

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.
FICHE DE DONNÉES DE SÉCURITÉ
conformément au Règlement (CE) No. 1907/2006

CADOX M-50A

Version 2 Date de révision 16.09.2017 Date d'impression 26.04.2018 FR / FR

RUBRIQUE 1: IDENTIFICATION DE LA SUBSTANCE/DU MÉLANGE ET DE LA SOCIÉTÉ/L'ENTREPRISE

1.1 Identificateur de produit

Nom commercial : CADOX M-50A

1.2 Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées

Utilisation de la substance/du mélange : Utilisation(s) particulière(s): Durcisseur

1.3 Renseignements concernant le fournisseur de la fiche de données de sécurité

Société : Akzo Nobel Functional Chemicals B.V.
Velpenweg 76
NL 6824 BM Amhem
Netherlands

Téléphone : +31263694433
Téléfax : +31263695630
Adresse e-mail : RegulatoryAffairs@akzonobel.com

1.4 Numéro d'appel d'urgence


RUBRIQUE 2: IDENTIFICATION DES DANGERS

2.1 Classification de la substance ou du mélange

Classification (RÈGLEMENT (CE) No 1272/2008)
Peroxydes organiques, D, H242
Toxicité aiguë, 4, H302
Toxicité aiguë, 4, H332
Corrosion cutanée, 1B, H314
Lésions oculaires graves, 1, H318
Toxicité chronique pour le milieu aquatique, 3, H412

Pour le texte complet des Phrases-H mentionnées dans ce chapitre, voir section 16.

2.2 Éléments d'étiquetage
Étiquetage (RÈGLEMENT (CE) No 1272/2008)

Pictogramme :

![Pictogramme]

Mention d'avertissement : Danger

Mentions de danger :
- H242 Peut s'enflammer sous l'effet de la chaleur.
- H302 + H332 Nocif en cas d'ingestion ou d'inhalation.
- H314 Provoque des brûlures de la peau et de graves lésions des yeux.
- H412 Nocif pour les organismes aquatiques, entraîne des effets néfastes à long terme.

Conseils de prudence :

**Prévention:**
- P220 Tenir à l'écart des impuretés, de la rouille, des produits chimiques en particulier.
- P234 Conserver uniquement dans le récipient d'origine.
- P261 Éviter de respirer les brouillards, les vapeurs ou les aérosols.
- P280 Porter des gants de protection/ des vêtements de protection/ un équipement de protection des yeux/ du visage.

**Intervention:**
- P303 + P361 + P353 EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux): Enlever immédiatement tous les vêtements contaminés. Rincer la peau à l'eau/Se doucher.
- P305 + P351 + P338 + P310 EN CAS DE CONTACT AVEC LES YEUX. Rincer avec précaution à l'eau pendant plusieurs minutes. Enlever les lentilles de contact si la victime en porte et s'elles peuvent être facilement enlevées. Continuer à rincer. Appeler immédiatement un CENTRE ANTIFOISON/un médecin.

Composants dangereux qui doivent être listés sur l'étiquette:
- Methyl ethyl ketone peroxide; Reaction mass of butane- 1338-23-4
- 2,2-diyldihydroperoxide and di-sec-butyldihydroperoxide

2.3 Autres dangers

Plus de données disponibles.
Évaluation PBT et vPvB : Cette substance/ce mélange ne contient aucun ingrédient considéré comme persistant, bio-accumulable et toxique (PBT), ou très persistant et très bio-accumulable (vPvB) à des niveaux de 0,1% ou plus.
### RUBRIQUE 3: COMPOSITION/INFORMATIONS SUR LES COMPOSANTS

#### 3.2 Mélanges

**Substance dangereuse**

<table>
<thead>
<tr>
<th>Nom Chimique</th>
<th>PBTVfYfB</th>
<th>No.-CAS</th>
<th>Classification (RÈGLEMENT (CE) No 1272/2008)</th>
<th>Concentration [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2,4-Triméthyl-1,3-pentanediol disobutanoate</td>
<td>0846-50-0</td>
<td>229-934-9</td>
<td>Aquatic Chronic 3; H412</td>
<td>60 - 70</td>
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<tr>
<td></td>
<td>01-2119451093-47</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>01-2119514601-43</td>
<td></td>
<td>Acute Tox. 4; H302</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4; H332</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Corr. 1B; H314</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1; H318</td>
<td></td>
</tr>
<tr>
<td>Peroxyde d'hydrogène en solution</td>
<td>7722-84-1</td>
<td>231-765-0</td>
<td>Ox. Liq. 1; H271</td>
<td>1 - 3</td>
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<td></td>
<td>Skin Corr. 1A; H314</td>
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<td></td>
<td>STOT SE 3; H35</td>
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<td></td>
<td></td>
<td>Aquatic Chronic 3; H412</td>
<td></td>
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<tr>
<td>Methyl ethyl ketone</td>
<td>78-93-3</td>
<td>201-159-0</td>
<td>Flam. Liq. 2; H225</td>
<td>1 - 2</td>
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<td>01-2119457290-43</td>
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<td>Eye Irrit. 2; H319</td>
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<td></td>
<td></td>
<td></td>
<td>STOT SE 3; H336</td>
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</tr>
</tbody>
</table>

**Remarques** : Péroxyde de méthyl éthyl cétone, solution à 30-35% dans de l'ester aliphatique

Pour le texte complet des Phrases-H mentionnées dans ce chapitre, voir section 16.

**REACH - Listes des substances extrêmement préoccupantes candidates en vue d'une autorisation (Article 69).**

**Statut** : Non applicable
RUBRIQUE 4: PREMIERS SECOURS

4.1 Description des premiers secours

Conseils généraux : Un examen médical immédiat est requis.
S'éloigner de la zone dangereuse.
Montrer cette fiche de données de sécurité au médecin traitant.

En cas d'inhalation : En cas d'inhalation, transporter la personne hors de la zone contaminée.
Consulter un médecin après toute exposition importante.

En cas de contact avec la peau : Oter immédiatement les vêtements et les chaussures contaminés.
Rincer immédiatement avec beaucoup d'eau.
Un traitement médical immédiat est nécessaire car les effets corrosifs cutanés non traités donnent des blessures qui guérissent lentement et difficilement.

En cas de contact avec les yeux : Rincer abondamment à l'eau.
Consulter immédiatement un médecin. Continuer à rincer, même pendant le transport.
Enlever les lentilles de contact.
Protéger l'œil intact.
Maintenir l'œil bien ouvert pendant le rinçage.
Même de petites éclaboussures dans les yeux peuvent provoquer des lésions irréversibles des tissus et une cécité.

En cas d'ingestion : Se rincer la bouche à l'eau puis boire beaucoup d'eau.
Ne jamais rien faire avaler à une personne inconsciente.
Transporter immédiatement la victime à l'hôpital.
Ne pas faire vomir! Peut provoquer des brûlures dans la bouche et la gorge.

4.2 Principaux symptômes et effets, aigus et différés

Symptômes : Les symptômes et effets résultant inhérents aux risques sont ceux présentés dans la section 2. Il n'existe aucun symptôme connu inhérent au produit

Risques : Nocif en cas d'ingestion ou d'inhalation.
Provoque de graves lésions des yeux.
Provoque de graves brûlures.

4.3 Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires

Traitement : Traiter de façon symptomatique.

RUBRIQUE 5: MESURES DE LUTTE CONTRE L'INCENDIE

5.1 Moyens d'extinction

Moyens d'extinction appropriés : Pulvériser de l'eau ou utiliser de la mousse résistant à l'alcool,
de la poudre sèche ou du dioxyde de carbone.
5.2 Dangers particuliers résultant de la substance ou du mélange

Dangers spécifiques pendant la lutte contre l'incendie / Dangers spécifiques dus au produit chimique

ATTENTION: réamorçage possible
Supporte la combustion.
Pulvérisations d'eau parfois inefficaces si appliquées par des intervenants sans expérience.
Ne pas laisser pénétrer l'eau d'extinction contaminée dans les égouts ou les cours d'eau.
Le chauffage peut provoquer une décomposition avec rejet de fumées toxiques.

Produits de combustion

La combustion produira une fumée contenant des produits de combustion dangereux (voir chapitre 10).
L'oxygène

5.3 Conseils aux pompiers

Équipements de protection particuliers des pompiers

En cas d'incendie, porter un appareil de protection respiratoire autonome.

Information supplémentaire

Les récipients fermés peuvent être refroidis par eau pulvérisée.
Collecter séparément l'eau d'extinction contaminée, ne pas la rejeter dans les canalisations.
Les résidus d'incendie et l'eau d'extinction contaminée doivent être éliminés conformément à la réglementation locale en vigueur.

RUBRIQUE 6: MESURES À PRENDRE EN CAS DE DISPERSION ACCIDENTELLE

6.1 Précautions individuelles, équipement de protection et procédures d'urgence

Précautions individuelles

Utiliser un équipement de protection individuelle.
Porter un équipement de protection respiratoire.
Assurer une ventilation adéquate.
Enlever toute source d'ignition.
Attention aux vapeurs qui s'accumulent en formant des concentrations explosives. Les vapeurs peuvent s'accumuler dans les zones basses.

6.2 Précautions pour la protection de l'environnement

Précautions pour la protection de l'environnement

Éviter que le produit arrive dans les égouts.
En cas de pollution de cours d'eau, lacs ou égouts, informer les autorités compétentes conformément aux dispositions locales.

6.3 Méthodes et matériel de confinement et de nettoyage

Méthodes de nettoyage / Méthodes de confinement

Maintenir humide avec de l'eau.
Imbiber d'un matériau absorbant inerte et évacuer comme un déchet spécial.
Le confinement doit être évité.
Ne jamais réintroduire le produit répandu dans son récipient d'origine en vue d'une réutilisation.
6.4 Référence à d'autres rubriques
Conseils supplémentaires : Équipement de protection individuel, voir section 8.

RUBRIQUE 7: MANIPULATION ET STOCKAGE

7.1 Précautions à prendre pour une manipulation sans danger
Conseils pour une manipulation sans danger : Équipement de protection individuel, voir section 8. 
Éviter la formation d’aérosols. 
Ne pas respirer les vapeurs ou le brouillard de pulvérisation. 
Ne pas manger, fumer ou boire dans la zone de travail. 
Prévoir un renouvellement d’air et/ou une ventilation suffisante dans les ateliers. 
Ouvrir les têtes avec précaution, le contenu pouvant être sous pression. 
Éliminer l’eau de rinçage en accord avec les réglementations locales et nationales.

Indications pour la protection contre l’incendie et l’explosion : Utilisez un équipement protégé des explosions. 
Conserver à l’écart de toute flamme ou source d’étincelles - Ne pas fumer. 
Utiliser des outils anti-étincelles. 
Tenez éloigné des agents réducteurs (i.e. aminés), acides, alcalins et composés de métaux lourds (i.e. accélérateurs, sèchoirs, savons à métaux). 
Ne coupez pas ni ne soudez sur ou à côté de ce conteneur même vide. 
Tenir à l’écart des matières combustibles.

Classe de température : Il est recommandé d’utiliser un équipement électrique du groupe de température T3. Cependant, une auto-inflammation n’est jamais à exclure.

7.2 Conditions d’un stockage sûr, y compris d’éventuelles incompatibilités
Exigences concernant les aires de stockage et les conteneurs : Défense de fumer. 
Les installations et le matériel électriques doivent être conformes aux normes techniques de sécurité. 
Conserver uniquement dans le récipient d’origine. 
Stocker à l’écart des autres matières.

Précautions pour le stockage en commun : Groupe de risque Gr2 (Peroxydes organiques, Arrêté du 6 novembre 2007)

Température maximum de stockage: 30 °C
Autres données : Pas de décomposition si le produit est entreposé et utilisé selon les prescriptions.

7.3 Utilisation(s) finale(s) particulière(s)
Utilisation(s) particulière(s) : Consulter les directives techniques pour l’utilisation de cette substance/ce mélange.
### RUBRIQUE 8: CONTROLES DE L’EXPOSITION/PROTECTION INDIVIDUELLE

#### 8.1 Paramètres de contrôle

**Composants avec valeurs limites d’exposition professionnelle**

<table>
<thead>
<tr>
<th>Composants</th>
<th>No.-CAS</th>
<th>Valeur</th>
<th>Paramètres de contrôle</th>
<th>Mise à jour</th>
<th>Base</th>
<th>Type d’exposition</th>
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<tbody>
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<td>Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butyhexaoxidane</td>
<td>1338-23-4</td>
<td>VLCT (VLE)</td>
<td>0,2 ppm</td>
<td>1,5 mg/m³</td>
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<td>Peroxyde d’hydrogène en solution</td>
<td>7722-84-1</td>
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<tr>
<td>Methyl ethyl ketone</td>
<td>78-93-3</td>
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<td>900 mg/m³</td>
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<td>*: Risque de pénétration percutanée noir: Valeurs limites réglementaires contraignantes</td>
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<td>eye irrit: Eye irritation liver dam: Liver damage kidney dam: Kidney damage skin irrit: Skin irritation</td>
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<td>NIOSH REL</td>
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<td>(b): The value in mg/m³ is approximate.</td>
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<th>Agency</th>
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<td>CNS IRR: Central Nervous System Impairment</td>
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<tr>
<td>URT IRR: Upper Respiratory Tract irritation</td>
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<tr>
<td>PNS IRR: Peripheral Nervous System Impairment</td>
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<td>PNS IRR: Peripheral Nervous System Impairment</td>
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<td>590 mg/m³</td>
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<td>1997-08-04</td>
<td>OSHA Z-1</td>
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</table>
ACGIH: American Conference of Governmental Industrial Hygienists
AGW: Arbeitsplatzgrenzwert
BEL: Biological Exposure Index
MAC: Maximum Allowable Concentration
NIOSH: National Institute for Occupational Safety and Health
OEL: OEL: limite d'exposition professionnelle.
STEL: Valeur limite à courte terme
TRGS: Technische Regel für Gefahrstoffe
TWA: Moyenne pondérée dans le temps (TWA)

**Valeurs limites d'exposition professionnelles des produits de décomposition**

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<tr>
<th>Produits de décomposition</th>
<th>No.-CAS</th>
<th>Valeur</th>
<th>Paramètres de contrôle</th>
<th>Mise à jour</th>
<th>Base</th>
<th>Type d'exposition</th>
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<tr>
<td>Acide formique</td>
<td>64-18-6, 64-18-6</td>
<td>TWA 5 ppm 9 mg/m³</td>
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<tr>
<td></td>
<td>VLCT (VLE) 5 ppm 9 mg/m³</td>
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<td>Acide acétique</td>
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<td>2005-02-01</td>
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<tr>
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<td>TWA 10 ppm 25 mg/m³</td>
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<td>2017/64/EU</td>
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<td>31 mg/m³</td>
<td>62 mg/m³</td>
<td>31 mg/m³</td>
<td>62 mg/m³</td>
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<td>2000-06-16</td>
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<td>2006-08-01</td>
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<tr>
<td>Methyl ethyl ketone</td>
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<tr>
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<td>600 mg/m³</td>
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<td>URT irr: Upper Respiratory Tract irritation</td>
<td>URT irr: Upper Respiratory Tract irritation</td>
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<td></td>
<td>eye irr: Eye irritation</td>
<td>eye irr: Eye irritation</td>
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<td>skin irr: Skin irritation</td>
<td>skin irr: Skin irritation</td>
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<table>
<thead>
<tr>
<th>TWA</th>
<th>STEL</th>
<th>VME</th>
<th>VLCT (VLE)</th>
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<tr>
<td>5 ppm</td>
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<th>STEL</th>
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<td>10 ppm</td>
<td>15 ppm</td>
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<tr>
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<td></td>
<td>Can be found in concentrations of 5-8% in vinegar</td>
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<td>37 mg/m³</td>
<td>Pulm: func; Pulmonary function, URT: irr; Upper Respiratory Tract irritation, eye: irr; Eye irritation</td>
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Notes:
- (b): The value in mg/m³ is approximate.
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<td></td>
<td>ST</td>
<td>300 ppm</td>
<td>300 ppm</td>
<td>10 ppm</td>
</tr>
<tr>
<td></td>
<td>eye ir: Eye irritation</td>
<td>eye ir: Eye irritation</td>
<td>eye ir: Eye irritation</td>
<td>eye ir: Eye irritation</td>
</tr>
<tr>
<td>Further information</td>
<td>BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI section)</td>
<td>BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI section)</td>
<td>BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI section)</td>
<td>BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI section)</td>
</tr>
<tr>
<td>Further information</td>
<td>(b): The value in mg/m³ is approximate.</td>
<td>(b): The value in mg/m³ is approximate.</td>
<td>(b): The value in mg/m³ is approximate.</td>
<td>(b): The value in mg/m³ is approximate.</td>
</tr>
</tbody>
</table>

ACGIH
NIOSH REL
OSHA P0
CAL PEL

Date de révision 16.09.2017
Date d'impression 26.04.2018
FR / FR
### Dose dérivée sans effet (DNEL) conformément au Règlement (CE) No. 1907/2006

<table>
<thead>
<tr>
<th>Nom de la substance</th>
<th>Utilisation finale</th>
<th>Voies d'exposition</th>
<th>Effets potentiels sur la santé</th>
<th>Valeur</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2,4-Trimethyl-1,3-pentandiol dibutylène</td>
<td>Travailleurs</td>
<td>Inhalation</td>
<td>Long terme - effets systémiques</td>
<td>110 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Travailleurs</td>
<td>Contact avec la peau</td>
<td>Long terme - effets systémiques</td>
<td>31,2 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Consommateurs</td>
<td>Inhalation</td>
<td>Long terme - effets systémiques</td>
<td>32,8 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consommateurs</td>
<td>Ingestion</td>
<td>Long terme - effets systémiques</td>
<td>18,8 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Consommateurs</td>
<td>Contact avec la peau</td>
<td>Long terme - effets systémiques</td>
<td>18,8 mg/kg</td>
</tr>
<tr>
<td>Methyl ethyl ketone peroxyde; Reaction mass of butane-2,2-diyldihydroperoxide and di-sec-butylnitroxide</td>
<td>Consommateurs</td>
<td>Contact avec la peau</td>
<td>Long terme - effets systémiques</td>
<td>0,54 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Consommateurs</td>
<td>Inhalation</td>
<td>Long terme - effets systémiques</td>
<td>0,41 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consommateurs</td>
<td>Ingestion</td>
<td>Long terme - effets systémiques</td>
<td>0,27 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Travailleurs</td>
<td>Contact avec la peau</td>
<td>Long terme - effets systémiques</td>
<td>1,08 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Travailleurs</td>
<td>Inhalation</td>
<td>Long terme - effets systémiques</td>
<td>1,9 mg/m³</td>
</tr>
<tr>
<td>Peroxyde d'hydrogène en solution</td>
<td>Travailleurs</td>
<td>Inhalation</td>
<td>Agi - effets locaux</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Travailleurs</td>
<td>Inhalation</td>
<td>Long terme - effets locaux</td>
<td>1,4 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consommateurs</td>
<td>Inhalation</td>
<td>Long terme - effets locaux</td>
<td>0,21 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consommateurs</td>
<td>Inhalation</td>
<td>Agi - effets locaux</td>
<td>1,93 mg/m³</td>
</tr>
<tr>
<td>Methyl ethyl ketone</td>
<td>Travailleurs</td>
<td>Inhalation</td>
<td>Long terme - effets systémiques</td>
<td>600 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Travailleurs</td>
<td>Contact avec la peau</td>
<td>Long terme - effets systémiques</td>
<td>1181 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Consommateurs</td>
<td>Inhalation</td>
<td>Long terme - effets systémiques</td>
<td>108 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consommateurs</td>
<td>Contact avec la peau</td>
<td>Long terme - effets systémiques</td>
<td>412 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Consommateurs</td>
<td>Ingestion</td>
<td>Long terme - effets systémiques</td>
<td>31 mg/kg</td>
</tr>
</tbody>
</table>

Concentration prédite sans effet (PNEC) conformément au Règlement (CE) No. 1907/2006
### Nom de la substance

<table>
<thead>
<tr>
<th>Compartiment de l'Environnement</th>
<th>Valeur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eau douce</td>
<td>0,014 mg/l</td>
</tr>
<tr>
<td>Eau de mer</td>
<td>0,0014 mg/l</td>
</tr>
<tr>
<td>Station de traitement des eaux usées</td>
<td>3 mg/l</td>
</tr>
<tr>
<td>Sédiment d'eau douce</td>
<td>5,29 mg/kg de poids sec</td>
</tr>
<tr>
<td>Sédiment marin</td>
<td>0,529 mg/kg de poids sec</td>
</tr>
<tr>
<td>Sol</td>
<td>1,05 mg/kg de poids sec</td>
</tr>
<tr>
<td>Methyl ethyl ketone peroxyde; Reaction mass of butane-2,2-diyl/hydroperoxide and di-sec-butyli/hexaoxidane</td>
<td></td>
</tr>
<tr>
<td>Eau douce</td>
<td>0,0056 mg/l</td>
</tr>
<tr>
<td>Eau intermittente</td>
<td>0,056 mg/l</td>
</tr>
<tr>
<td>Eau de mer</td>
<td>0,00056 mg/l</td>
</tr>
<tr>
<td>Sédiment d'eau douce</td>
<td>0,019 mg/kg de poids sec</td>
</tr>
<tr>
<td>Sédiment marin</td>
<td>0,0019 mg/kg de poids sec</td>
</tr>
<tr>
<td>Station de traitement des eaux usées</td>
<td>1,2 mg/l</td>
</tr>
<tr>
<td>Sol</td>
<td>0,00231 mg/kg de poids sec</td>
</tr>
<tr>
<td>Peroxyde d'hydrogène en solution</td>
<td></td>
</tr>
<tr>
<td>Eau douce</td>
<td>0,0126 mg/l</td>
</tr>
<tr>
<td>Eau de mer</td>
<td>0,0126 mg/l</td>
</tr>
<tr>
<td>Sol</td>
<td>0,0023 mg/kg</td>
</tr>
<tr>
<td>Station de traitement des eaux usées</td>
<td>4,96 mg/l</td>
</tr>
<tr>
<td>Sédiment d'eau douce</td>
<td>0,047 mg/kg</td>
</tr>
<tr>
<td>Sédiment marin</td>
<td>0,047 mg/kg</td>
</tr>
<tr>
<td>Eau intermittente</td>
<td>0,0138 mg/l</td>
</tr>
<tr>
<td>Methyl ethyl ketone</td>
<td></td>
</tr>
<tr>
<td>Eau douce</td>
<td>55,8 mg/l</td>
</tr>
<tr>
<td>Eau de mer</td>
<td>55,8 mg/l</td>
</tr>
<tr>
<td>Eau intermittente</td>
<td>55,8 mg/l</td>
</tr>
<tr>
<td>Station de traitement des eaux usées</td>
<td>709 mg/l</td>
</tr>
<tr>
<td>Sédiment d'eau douce</td>
<td>284,74 mg/kg de poids sec</td>
</tr>
<tr>
<td>Sédiment marin</td>
<td>284,74 mg/kg de poids sec</td>
</tr>
<tr>
<td>Sol</td>
<td>22,5 mg/kg de poids sec</td>
</tr>
<tr>
<td>Oral(e)</td>
<td>1000 Aliments mg / kg</td>
</tr>
</tbody>
</table>

### 8.2 Contrôles de l'exposition

**Mesures techniques**

Ventilation anti-explosion recommandée. Système efficace de ventilation par aspiration
S'assurer que les emplacements des douches oculaires et des douches de sécurité sont proches des emplacements des postes de travail.

**Équipement de protection individuelle**

**Protection respiratoire** : En cas de formation de vapeurs ou d'aérosol, utiliser un respirateur avec un filtre homologué.
- Filtre A

**Protection des mains** : Néoprène
- Caoutchouc nitrile

**Protection des yeux** : Lunettes de sécurité à protection intégrale
- Porter un écran-facial et des vêtements de protection en cas de problèmes lors de la mise en œuvre.

**Protection de la peau et du corps** : Vêtement de protection

**Mesures d'hygiène** : À manipuler conformément aux bonnes pratiques d'hygiène industrielle et aux consignes de sécurité.
- Ne pas manger et ne pas boire pendant l'utilisation.
- Ne pas fumer pendant l'utilisation.
- Se laver les mains avant les pauses et à la fin de la journée de travail.

**Contrôles d'exposition liés à la protection de l'environnement**

**Conseils généraux** : Éviter que le produit arrive dans les égouts.
- En cas de pollution de cours d'eau, lacs ou égouts, informer les autorités compétentes conformément aux dispositions locales.

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**RUBRIQUE 9: PROPRIÉTÉS PHYSIQUES ET CHIMIQUES**

9.1 Informations sur les propriétés physiques et chimiques essentielles

**Aspect**

- **Forme** : liquide
- **Couleur** : clair
  - incolore
- **Odeur** : Très léger.
- **Seuil olfactif** : Donnée non disponible

**Données de sécurité**

- **pH** : Faiblement acide
- **Point de fusion** : Donnée non disponible
- **Point/intervalle d'ébullition** : Se décompose au-dessous du point d'ébullition.
<table>
<thead>
<tr>
<th>Propriété</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point d'éclair</td>
<td>Supérieure à la SADT</td>
</tr>
<tr>
<td>Taux d'évaporation</td>
<td>Donnée non disponible</td>
</tr>
<tr>
<td>Inflammabilité (solide, gaz)</td>
<td>Non applicable</td>
</tr>
<tr>
<td>Inflammabilité (liquides)</td>
<td>Les produits de décomposition peuvent s'enflammer.</td>
</tr>
<tr>
<td>Limite d'explosivité, inférieure</td>
<td>Non applicable</td>
</tr>
<tr>
<td>Limite d'explosivité, supérieure</td>
<td>Non applicable</td>
</tr>
<tr>
<td>Pression de vapeur</td>
<td>non déterminé</td>
</tr>
<tr>
<td>Densité de vapeur relative</td>
<td>Donnée non disponible</td>
</tr>
<tr>
<td>Densité relative</td>
<td>env. 1,0 à 20 °C</td>
</tr>
<tr>
<td>Masse volumique apparente</td>
<td>Non applicable</td>
</tr>
<tr>
<td>Hydrosolubilité</td>
<td>partiellement miscible</td>
</tr>
<tr>
<td>Solubilité dans d'autres solvants</td>
<td>Donnée non disponible</td>
</tr>
<tr>
<td>Coefficient de partage: n-octanol/eau</td>
<td>Donnée non disponible</td>
</tr>
<tr>
<td>Température d'auto-inflammabilité</td>
<td>Méthodes de test non applicables</td>
</tr>
<tr>
<td>Température de décomposition</td>
<td>TDAA (Température de décomposition auto-acclérée) : température la plus basse à laquelle une décomposition auto-acclérée peut se produire avec une substance dans l'emballage commercial utilisé dans les transports. Une réaction de décomposition auto-acclérée dangereuse, et, dans certaines circonstances, une explosion ou un incendie peuvent être causés par la décomposition thermale à une valeur égale ou supérieure à la TDAA. Des contacts avec des substances incompatibles peuvent causer une décomposition à une valeur inférieure à la TDAA.</td>
</tr>
<tr>
<td>Température de décomposition auto-acclérée (TDAA)</td>
<td>60 °C</td>
</tr>
<tr>
<td>Viscosité, dynamique</td>
<td>Donnée non disponible</td>
</tr>
<tr>
<td>Viscosité, cinématique</td>
<td>Donnée non disponible</td>
</tr>
<tr>
<td>Propriétés explosives</td>
<td>Non explosif</td>
</tr>
<tr>
<td>Propriétés comburantes</td>
<td>Non classé comme oxydant</td>
</tr>
</tbody>
</table>
9.2 Autres informations

Contenu en Oxygène Actif : 8,8 - 9,0 %

Peroxydes organiques : 30 - 35 %

Cette fiche de données de sécurité ne contient que des informations relatives à la sécurité et ne remplace aucune information ni spécification concernant le produit.

RUBRIQUE 10: STABILITÉ ET RÉACTIVITÉ

10.1 Réactivité

Stable dans des conditions normales.

10.2 Stabilité chimique

Stable dans les conditions recommandées de stockage.

10.3 Possibilité de réactions dangereuses

Pas de réactions dangereuses connues dans les conditions normales d'utilisation.

10.4 Conditions à éviter

Conditions à éviter : Le confinement doit être évité.

Chaleur, flammes et étincelles.

10.5 Matières incompatibles

Matières à éviter : Le contact avec des matières incompatibles suivants résultera en une décomposition dangereuse :

Des acides et des bases
Fer
Cuivre
Agents réducteurs
Métaux lourds
Rouille
Ne pas mélanger avec des activateurs au peroxyde, sauf sous traitement contrôlé
Utiliser seulement Du matériel en acier inoxydable 316, en PP, en polyéthylène ou en verre
Pour toute question concernant la pertinence d'autres matériaux, veuillez contacter le fournisseur.

10.6 Produits de décomposition dangereux

Produits de décomposition dangereux : Acide formique
Acide acétique
Acide propionique
Methyl ethyl ketone
Oxydes de carbone
Décomposition thermique

TDAA (Température de décomposition auto-accélérée) : température la plus basse à laquelle une décomposition auto-accélérée peut se produire avec une substance dans l'emballage commercial utilisé dans les transports. Une réaction de décomposition auto-accélérée dangereuse, et, dans certaines circonstances, une explosion ou un incendie peuvent être causés par la décomposition thermale à une valeur égale ou supérieure à la TDAA. Des contacts avec des substances incompatibles peuvent causer une décomposition à une valeur inférieure à la TDAA.

Température de décomposition auto-accélérée (TDAA) : 60 °C

RUBRIQUE 11: INFORMATIONS TOXICOLOGIQUES

11.1 Informations sur les effets toxicologiques

Informations sur le produit:
Toxicité aiguë : Nocif en cas d'ingestion ou d'inhalation.

Corrosion cutanée/irritation cutanée
Lésions oculaires
graves/irritation oculaire
Sensibilisation respiratoire ou cutanée

: Provoque de graves brûlures.
: Provoque de graves lésions des yeux.
: Sensibilisation respiratoire: Non classé sur la base des informations disponibles.
: Sensibilisation cutanée: Non classé sur la base des informations disponibles.

Mutagénicité sur les cellules germinales
Cancérogénicité
Toxicité pour la reproduction

: Non classé sur la base des informations disponibles.
: Non classé sur la base des informations disponibles.
: Non classé sur la base des informations disponibles.

Toxicité spécifique pour certains organes cibles - exposition unique
Toxicité spécifique pour certains organes cibles - exposition répétée
Danger par aspiration

: Non classé sur la base des informations disponibles.
: Non classé sur la base des informations disponibles.
: Non classé sur la base des informations disponibles.

Information supplémentaire
: Plus de données disponibles.

Résultat du test
Toxicité aiguë par voie orale
DL50 oral: 1 017 mg/kg
Espèce: les rats
Méthode: OCDE ligne directrice 401

Toxicité aiguë par inhalation
CL50 (Rat): 1,5 mg/l
Durée d'exposition: 4 h
Atmosphère de test: poussières/brouillard
Toxicité aiguë par voie cutanée : DL50: 4 000 mg/kg
Espèce: Lapin
Méthode: OCDE ligne directrice 402

Corrosion cutanée/irritation cutanée : Espèce: Lapin
Résultat: Sous-catégorie 1B
Classification: Catégorie 1B

Lésions oculaires graves/irritation oculaire : Espèce: Lapin
Résultat: Risque de lésions oculaires graves.
Classification: Risque de lésions oculaires graves.

Mutagénicité sur les cellules germinales
Génotoxicité in vitro : Test de Ames
Résultat: négatif

Génotoxicité in vivo : N'est pas classé en raison de données qui, bien que concluantes, sont insuffisantes pour une classification.

Toxicité pour la reproduction/Fertilité : Espèce: Rat, mâle et femelle
Voie d'application: Oral(e)
Dose: 0, 25, 50, 75 milligramme par kilogramme
Toxicité générale chez les parents: Dose sans effet toxique observé: 50 mg/kg p.c./jour
Toxicité générale sur la génération F1: Dose sans effet nocif observé sur la génération F1: 50 mg/kg p.c./jour
Fertilité: Dose sans effet nocif observé chez les parents: 75 mg/kg p.c./jour
Méthode: OCDE Ligne directrice 421
BPL: oui

Toxicité spécifique pour certains organes cibles - exposition répétée

Danger par aspiration : La substance ou le mélange n'est pas classé comme toxique spécifique pour un organe cible, exposition répétée.

Données toxicologiques pour les composants:
2,2,4-Trimethyl-1,3-pentanediol dilsobutanoate

Toxicité aiguë:
Danger par aspiration : Aucune classification comme toxique pour l'exposition par aspiration

Methyl ethyl ketone peroxyde; Reaction mass of butane-2,2-diyd dlhydroperoxide and dilsobutanoate

Toxicité aiguë:
Toxicité aiguë par voie orale : DL50: 1 017 mg/kg
Espèce: Rat
Toxicité aiguë par inhalation : CL50 (Rat): 1,5 mg/l
Durée d'exposition: 4 h
Atmosphère de test: poussières/brouillard

Toxicité aiguë par voie cutanée : DL50: 4 000 mg/kg
Espèce: Rat

Corrosion cutanée/irritation cutanée : Résultat: Provoque des brûlures.

Lésions oculaires graves/irritation oculaire : Résultat: Risque de lésions oculaires graves.

Mutagénicité sur les cellules germinales
Génotoxicité in vitro : Test de Ames
Résultat: négatif

Génotoxicité in vivo : N'est pas classé en raison de données qui, bien que concluantes, sont insuffisantes pour une classification.

Cancérogénicité :
Donnée non disponible

Toxicité pour la reproduction/Fertilité :
Espèce: Rat, mâle et femelle
Voie d'application: Oral(e)
Dose: 0 25, 50, 75 milligramme par kilogramme
Toxicité générale chez les parents: Dose sans effet toxique observé: 50 mg/kg p.c./jour
Toxicité générale sur la génération F1: Dose sans effet nocif observé sur la génération F1: 50 mg/kg p.c./jour
Fertilité: Dose sans effet nocif observé chez les parents: 75 mg/kg p.c./jour
Méthode: OCDE Ligne directrice 421
BPL: oui

Toxicité spécifique pour certains organes cibles - exposition répétée : La substance ou le mélange n'est pas classé comme toxique spécifique pour un organe cible, exposition répétée.

Danger par aspiration : Aucune classification comme toxique pour l'exposition par aspiration

Peroxyde d'hydrogène en solution
Toxicité aiguë:
Toxicité aiguë par voie orale : DL50: 431 mg/kg
Espèce: Rat
Méthode: OCDE ligne directrice 401
Données documents.

Toxicité aiguë par inhalation : CL50 : 1,5 mg/l
Durée d'exposition: 4 h
Atmosphère de test: poussières/brouillard
Méthode: Avis d'expert

Évaluation: La substance ou le mélange est classé comme toxique spécifique pour un organe cible, exposition unique, catégorie 3 avec irritation des voies respiratoires.

Toxicité aiguë par voie cutanée : DL0: > 700 mg/kg
Espèce: Lapin
Données documents.

Corrosion cutanée/irritation cutanée : Résultat: Provoque de graves brûlures.

Mutagénicité sur les cellules germinales
Génotoxicité in vivo : Espèce: Souris
Méthode: Mutagénicité: Essai du micronoyau
Résultat: négatif
Données documents.

Methyl ethyl ketone

Toxicité aiguë:
Toxicité aiguë par voie orale : DL50: 2 737 mg/kg
Espèce: Rat

Toxicité aiguë par voie cutanée : DL50: 6 480 mg/kg
Espèce: Lapin

Corrosion cutanée/irritation cutanée : Résultat: L'exposition répétée peut provoquer dessèchement ou gerçures de la peau.
Modérément irritant.

Lésions oculaires
Graves/irritation oculaire : Résultat: Irritant pour les yeux.

Toxicité spécifique pour certains organes cibles - exposition unique : Voies d'exposition: Inhalation
La substance ou le mélange est classé comme toxique spécifique pour un organe cible, exposition unique, catégorie 3 avec effets narcotiques.

Danger par aspiration : Aucune classification comme toxique pour l'exposition par aspiration

RUBRIQUE 12: INFORMATIONS ÉCOLOGIQUES
Informations sur le produit:
Évaluation Ecotoxicologique
Information écologique supplémentaire : Un danger environnemental ne peut pas être exclu dans l'éventualité d'une manipulation ou d'une élimination peu professionnelle.
Toxique pour les organismes aquatiques.
Nocif pour les organismes aquatiques, entraîne des effets néfastes à long terme.

12.1 Toxicité

**Résultat du test**

**Toxicité pour les poissons**
- CL50: 44,2 mg/l
- Durée d'exposition: 96 h
- Espèce: Poecilia reticulata (Guppy)
- Type de Test: Essai en semi-statique

**Toxicité pour la daphnie et les autres invertébrés aquatiques**
- CE50: 39 mg/l
- Durée d'exposition: 48 h
- Espèce: Daphnia magna (Grande daphnie)
- Type de Test: Immobilisation

**Toxicité pour les algues**
- CE50c: 5,6 mg/l
- Durée d'exposition: 72 h
- Espèce: Pseudokirchneriella subcapitata (Micro-Algue)
- Type de Test: Inhibition de la croissance

**Toxicité pour les bactéries**
- EC10: 12 mg/l
- Durée d'exposition: 0,5 h
- Espèce: boue activée
- Type de Test: Inhibition de la respiration
- Méthode: Lignes Directrices 209 de l'OCDE pour l'activité ménagère

**Composants:**
**Évaluation Ecotoxicologique**
- 2,2,4-Trimethyl-1,3-pentanediol **dilisobutanoate**
- Toxicité aiguë pour le milieu aquatique: Aucune toxicité à la limite de solubilité
- Toxicité chronique pour le milieu aquatique: Nocif pour les organismes aquatiques, entraîne des effets néfastes à long terme.

**Peroxide d'hydrogène en solution**
- Toxicité chronique pour le milieu aquatique: Nocif pour les organismes aquatiques, entraîne des effets néfastes à long terme.

**Information écologique supplémentaire**
- Un danger environnemental ne peut pas être exclu dans l'éventualité d'une manipulation ou d'une élimination peu professionnelle.
- Toxicité pour les organismes aquatiques.
- Nocif pour les organismes aquatiques, entraîne des effets néfastes à long terme.

**Résultat du test**

**2,2,4-Trimethyl-1,3-pentanediol** **dilisobutanoate**
- Toxicité pour la daphnie et les autres invertébrés aquatiques (Toxicité chronique)
  - NOEC: 0,7 mg/l
  - Durée d'exposition: 21 jr
  - taux de reproduction
  - Espèce: Daphnia magna (Grande daphnie)
  - Méthode: OCDE Ligne directrice 211
Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyi dihydroperoxide and di-sec-butylhexaoxidane

Toxicité pour les poissons : CL50: 44,2 mg/l
   Durée d'exposition: 96 h
   Espèce: Poecilia reticulata (Guppy)
   Type de Test: Essai en semi-statique

Toxicité pour la daphnie et les autres invertébrés aquatiques : 39 mg/l
   Durée d'exposition: 48 h
   Espèce: Daphnia magna (Grande daphnie)
   Type de Test: Immobilisation

Toxicité pour les algues : CE50: 5,6 mg/l
   Durée d'exposition: 72 h
   Espèce: Pseudokirchneriella subcapitata (Micro-Algue)
   Type de Test: Inhibition de la croissance

Toxicité pour les bactéries : EC10: 12 mg/l
   Durée d'exposition: 0,5 h
   Espèce: boue activée
   Type de Test: Inhibition de la respiration
   Méthode: Lignes Directrices 209 de l'OCDE pour l'activité ménagère

Peroxyde d'hydrogène en solution

Toxicité pour les poissons : CL50: 16,4 mg/l
   Durée d'exposition: 96 h
   Espèce: Pimephales promelas (Vairon à grosse tête)
   Type de Test: Essai en semi-statique
   Données documents.

Toxicité pour la daphnie et les autres invertébrés aquatiques : CL50: 2,4 mg/l
   Durée d'exposition: 48 h
   Espèce: Daphniæ pulex (Daphnie)
   Type de Test: Essai en semi-statique
   Données documents.

Toxicité pour les algues : CE50: 1,38 mg/l
   Durée d'exposition: 72 h
   Espèce: Skelotonema costatum (algue marine)
   Type de Test: Essai en statique
   Données documents.

Methyl ethyl ketone

Toxicité pour les poissons : CL50: 3 220 mg/l
   Durée d'exposition: 96 h
   Espèce: Lophinis macrochirus (Crapet arlequin)

12.2 Persistance et dégradabilité

Informations sur le produit : Pas d'information disponible.
Composants:
Methyl ethyl ketone peroxyde; Reaction mass of butane-2,2-diyl dihydroperoxide and di-
sec-butylhexaoxidane
Biodégradabilité : Résultat: Facilement biodégradable.
Méthode: Essai de fiche fermée

Methyl ethyl ketone
Biodégradabilité : Résultat: Facilement biodégradable.

12.3 Potentiel de bioaccumulation
Informations sur le produit : Pas d'information disponible.

Composants:
Methyl ethyl ketone peroxyde; Reaction mass of butane-2,2-diyl dihydroperoxide and di-
sec-butylhexaoxidane
Bioaccumulation : Facteur de bioconcentration (FBC): 10,3
Peu probable étant donné la faible valeur log Pow.

Peroxyde d'hydrogène en solution
Bioaccumulation : Une bioaccumulation est peu probable.

12.4 Mobilité dans le sol
Informations sur le produit : Pas d'information disponible.

Composants:
Peroxyde d'hydrogène en solution
Mobilité : Peut être lessivé des sols.

Répartition entre les compartiments environnementaux
Ne pas effectuer de transport à l'air.

12.5 Résultats des évaluations PBT et vPvB
Informations sur le produit:
Évaluation PBT et vPvB : Cette substance/ce mélange ne contient aucun ingrédient considéré comme persistant, bio-accumulable et toxique (PBT), ou très persistant et très bio-accumulable (vPvB) à des niveaux de 0,1% ou plus.

Composants:
Peroxyde d'hydrogène en solution
Évaluation PBT et vPvB : Cette substance n'est pas considérée comme persistante, bioaccumulable et toxique (PBT), Cette substance n'est pas considérée comme très persistante et très bioaccumulable (vPvB).

12.6 Autres effets néfastes
Informations sur le produit : Pas d'information disponible.

Composants:
Peroxyde d'hydrogène en solution
Demande Biochimique en : Donnée non disponible
Oxygène (DBO)

RUBRIQUE 13: CONSIDÉRATIONS RELATIVES À L'ÉLIMINATION

13.1 Méthodes de traitement des déchets

Produit : Empêcher le produit de pénétrer dans les égouts, les cours d'eau ou le sol.
Ne pas contaminer les étangs, les voies navigables ou les fossés avec des résidus de produits chimiques ou des emballages déjà utilisés.
Déchet dangereux
Éliminer le contenu/récipient dans le lieu d'élimination conformément à la réglementation locale.

Emballages contaminés : Vider les restes.
Éliminer comme produit non utilisé.
Ne pas brûler les fûts vides ni les exposer au chalumeau.
En raison du risque élevé de contamination, le recyclage/récupération n'est pas conseillé.
Respectez tous les avertissements même avec le conteneur vide.

RUBRIQUE 14: INFORMATIONS RELATIVES AU TRANSPORT

14.1 Numéro ONU
ADN : UN 3105
ADR : UN 3105
RID : UN 3105
IMDG-Code : UN 3105
IATA-DGR : UN 3105

14.2 Nom d'expédition des Nations unies
ADN : PEROXYDE ORGANIQUE DE TYPE D, LIQUIDE (Methyl ethyl ketone peroxide)
ADR : PEROXYDE ORGANIQUE DE TYPE D, LIQUIDE (Peroxyde de méthyléthylcétone)
RID : PEROXYDE ORGANIQUE DE TYPE D, LIQUIDE (Peroxyde de méthyléthylcétone)
IMDG-Code : ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide)
IATA-DGR : Organic peroxide type D, liquid (Methyl ethyl ketone peroxide)

14.3 Classe(s) de danger pour le transport
ADN : 5.2
ADR : 5.2
RID : 5.2
IMDG-Code : 5.2
IATA-DGR : 5.2 (HEAT)

14.4 Groupe d'emballage
ADN
Groupe d'emballage : Non attribuée
Code de classification : P1
Étiquettes : 5.2
ADR
Groupe d'emballage : Non attribuée
Code de classification : P1
Étiquettes : 5.2
Code de restriction en tunnels
RID
Groupe d'emballage : Non attribuée
Code de classification : P1
Numéro d'identification du danger
Étiquettes : 5.2
IMDG-Code
Groupe d'emballage : Non attribuée
Étiquettes : 5.2
EmS Code : F-J, S-R
IATA-DGR
Instructions de conditionnement (avion cargo) : 570
Instructions de conditionnement (avion de ligne) : 570
Groupe d'emballage : Non attribuée
Étiquettes : 5.2 (HEAT)

14.5 Dangers pour l'environnement
ADN
Dangereux pour l'environnement : non
ADR
Dangereux pour l'environnement : non
RID
Dangereux pour l'environnement : non
IMDG-Code
Polluant marin : non
IATA-DGR
Dangereux pour l'environnement : non

14.6 Précautions particulières à prendre par l'utilisateur
Non applicable

14.7 Transport en vrac conformément à l'annexe II de la convention Marpol 73/78 et au recueil IBC
Non applicable pour le produit tel qu'il est fourni.
RUBRIQUE 15: INFORMATIONS RELATIVES À LA RÉGLEMENTATION

15.1 Réglementations/épisode particulière à la substance ou au mélange en matière de sécurité, de santé et d'environnement

Réglementation relative aux dangers liés aux accidents majeurs (Réglementation relative aux installations classées) : Directive Seveso 2012/18/UE SUBSTANCES ET MÉLANGES AUTORÉACTIFS et PEROXYDES ORGANIQUES Pb QUANTITÉ 1: 50 l QUANTITÉ 2: 200 l

Classe de contamination de l'eau (Allemagne) : WGK 1 pollue faiblement l'eau

Maladies professionnelles (R-461-3, France) : 84: Affections engendrées par les solvants organiques liquides à usage professionnel (indiqués dans le tableau).

État actuel de notification

DSL : OUI. Tous les composants de ce produit sont sur la liste canadienne LIS
AICS : OUI. Listé ou en conformité avec l'inventaire
NZIoC : NON. Listé ou en conformité avec l'inventaire
ENCS : OUI. Listé ou en conformité avec l'inventaire
ISHIL : OUI. Listé ou en conformité avec l'inventaire
KECI : OUI. Listé ou en conformité avec l'inventaire
PICCS : OUI. Listé ou en conformité avec l'inventaire
IECSC : OUI. Listé ou en conformité avec l'inventaire
TCSI : OUI. Listé ou en conformité avec l'inventaire
TSCA : OUI. Toutes les substances chimiques dans ce produit sont soit listées sur l'inventaire du TSCA soit sont en accord avec la dispense à l'inventaire du TSCA.

Pour l'explication des abréviations, voir chapitre 16.

Information supplémentaire
La préparation est conforme aux directives CEE.

15.2 Évaluation de la sécurité chimique

Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyI dihydroperoxide and di-sec-butylhexaoxidane Peroxyde d'hydrogène en solution : Une Évaluation de la Sécurité Chimique a été faite pour cette substance.

RUBRIQUE 16: AUTRES INFORMATIONS

Texte complet des Phrases-H citées dans les sections 2 et 3.
H225 : Liquide et vapeurs très inflammables.
H240 : Peut exploser sous l’effet de la chaleur.
H242 : Peut s’enflammer sous l’effet de la chaleur.
H271 : Peut provoquer un incendie ou une explosion; comburant puissant.
H302 : Nocif en cas d’ingestion.
H314 : Provoque des brûlures de la peau et de graves lésions des yeux.
H318 : Provoque de graves lésions des yeux.
H319 : Provoque une sévère irritation des yeux.
H322 : Nocif par inhalation.
H335 : Peut irriter les voies respiratoires.
H336 : Peut provoquer somnolence ou vertiges.
H412 : Nocif pour les organismes aquatiques, entraîne des effets néfastes à long terme.

Procédure de classification:
Peroxides organiques, D, H242, Sur la base de données ou de l'évaluation des produits
Toxicité aiguë, 4, H302, Sur la base de données ou de l'évaluation des produits
Toxicité aiguë, 4, H332, Sur la base de données ou de l'évaluation des produits
Consoins cutanée, 1B, H314, Méthode de calcul
Lésions ouvertes graves, 1, H318, Sur la base de données ou de l'évaluation des produits
Toxicité chronique pour le milieu aquatique, 3, H412, Méthode de calcul

Texte complet pour autres abbreviations
ADN - Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures; ADR - Accord européen relatif au transport international des marchandises dangereuses par la route; AICS - Inventaire australien des substances chimiques; ASTM - Société américaine pour les essais de matériaux; bw - Poids corporel; CLP - Règlement relatif à la classification, à l’étiquetage et à l'emballage des substances; règlement (CE) n° 1272/2008; CMR - Cancérogène, mutagène ou toxique pour la reproduction; DIN - Norme de l'institut allemand de normalisation; DSL - Liste nationale des substances (Canada); ECHA - Agence européenne des produits chimiques; EC-Number - Numéro de Communauté européenne; ECX - Concentration associée à x % de réponse; ELx - Taux de charge associé à x % de réponse; EmS - Horaire d'urgence; ENCS - Substances chimiques existantes et substances nouvelles (Japon); ErCx - Concentration associée à une réponse de taux de croissance de x %; GHS - Système général harmonisé; GLP - Bonnes pratiques de laboratoire; IARC - Centre international de recherche sur le cancer; IATA - Association du transport aérien international; IBC - Code international pour la construction et l’équipement des navires transportant des produits chimiques dangereux en vac; IC50 - Concentration inhibitive demi maximale; ICAO - Organisation de l'aviation civile internationale; IECSC - Inventaire des substances chimiques existantes en Chine; IMDG - Marchandises dangereuses pour le transport maritime international; IMO - Organisation maritime internationale; ISHL - Sécurité industrielle et le droit de la santé (Japon); ISO - Organisation internationale de normalisation; KECI - Inventaire des produits chimiques courants existants; LC50 - Concentration létale pour 50 % d'une population test; LD50 - Dose létale pour 50 % d'une population test (dose létale moyenne); MARPOL - Convention internationale pour la prévention de la pollution par les navires; n. o. s. - Non spécifié; NO(A)EC - Effet de concentration non observé (négligé); NO(A)EL - Effet non observé (nocif); NOEL - Taux de charge sans effet observé; NZboC - Inventaire des produits chimiques en Nouvelle-Zélande; OECD - Organisation pour la coopération économique et le développement; OPPTS - Bureau de la sécurité chimique et prévention de la pollution; PBT - Persistant, bio-accumulable et toxique; PICCS - Inventaire des produits et substances chimiques aux Philippines; (Q)SAR - Relations structure-activité (quantitative); REACH - Règlement (CE) n° 1907/2006 du Parlement européen et du Conseil concernant l'enregistrement, l'évaluation, l'autorisation et la restriction des produits.
chimiques; RID - Règlement concernant le transport international des marchandises dangereuses par chemin de fer; SADT - Température de décomposition auto-acclérée; SDS - Fiche de Données de Sécurité; TCSI - Inventaire des substances chimiques à Taiwan; TRGS - Règle technique pour les substances dangereuses; TSCA - Loi sur le contrôle des substances toxiques (États-Unis); UN - Les Nations Unies; vPvB - Très persistant et très bioaccumulable

**Information supplémentaire**

Cette fiche de données de sécurité comporte des modifications par rapport à la version précédente dans la (les) section(s):

- Contrôles de l'exposition/ protection individuelle
- Informations toxicologiques
- Informations écologiques

Les informations contenues dans la présente fiche de sécurité ont été établies sur la base de nos connaissances à la date de publication de ce document. Ces informations ne sont données qu'à titre indicatif en vue de permettre des opérations de manipulation, fabrication, stockage, transport, distribution, mise à disposition, utilisation et élimination dans des conditions satisfaisantes de sécurité, et ne sauraient donc être interprétées comme une garantie ou considérées comme des spécifications de qualité. Ces informations ne concernent en outre que le produit nommément désigné et, sauf indication contraire spécifique, ne peuvent pas être applicables en cas de mélange du dit produit avec d'autres substances ou utilisables pour tout procédé de fabrication.
SAFETY DATA SHEET

1. Identification

Product identifier: PLEXUS® AO420FS Adhesive

Other means of identification:

SKU#: 0934

Recommended use: Not available.

Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name: ITW Performance Polymers
Address: 30 Endicott Street
Danvers, MA 01923
United States

Telephone: Customer Service 978-777-1100

Website: www.itwperformancepolymers.com

E-mail: Not available.

Contact person: EHS Department

Emergency phone number:

Chemtrec 800-424-9300
International 703-527-3887

2. Hazard(s) identification

Physical hazards: Flammable liquids Category 2

Health hazards:

Acute toxicity, dermal Category 4
Acute toxicity, inhalation Category 4
Skin corrosion/irritation Category 1A
Serious eye damage/eye irritation Category 1
Sensitization, skin Category 1A
Carcinogenicity Category 2
Specific target organ toxicity, single exposure Category 3 respiratory tract irritation
Specific target organ toxicity, repeated exposure Category 2

Environmental hazards: Not classified.

OSHA defined hazards: Not classified.

Label elements

Signal word: Danger

Hazard statement: Highly flammable liquid and vapor. Harmful in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Harmful if inhaled. May cause respiratory irritation. Suspected of causing cancer. May cause damage to organs through prolonged or repeated exposure.

Precautionary statement

Prevention:

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe mist/vapors. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection.
Response

If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If skin irritation or rash occurs: Get medical advice/attention. In case of fire: Use appropriate media to extinguish.

Storage

Keep cool. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.

Supplemental information

None.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl Methacrylate</td>
<td></td>
<td>80-62-6</td>
<td>40 - 60</td>
</tr>
<tr>
<td>Styrene/butadiene Copolymer</td>
<td></td>
<td>9003-55-8</td>
<td>10 - 20</td>
</tr>
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<td>DIISODECYL ADIPATE</td>
<td></td>
<td>27178-16-1</td>
<td>2.5 - 10</td>
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<td>METHACRYLIC ACID</td>
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<td>79-41-4</td>
<td>2.5 - 10</td>
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<tr>
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<td>3290-92-4</td>
<td>2.5 - 10</td>
</tr>
<tr>
<td>N,n-dimethyl-p-toluidine</td>
<td>99-97-8</td>
<td>1 - 2.5</td>
<td></td>
</tr>
<tr>
<td>Other components below reportable levels</td>
<td></td>
<td>10 - 20</td>
<td></td>
</tr>
</tbody>
</table>

4. First-aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a poison center or doctor/physician if you feel unwell.

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion

Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn’t get into the lungs.

Most important symptoms/effects, acute and delayed

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information

Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media

Water fog. Foam. Carbon dioxide (CO2). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.
Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. Material will float and may ignite on surface of water. During fire, gases hazardous to health may be formed.

Specific hazards arising from the chemical

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards

Highly flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe mist/vapors. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code".

Material name: PLEXUS® AO420FS Adhesive

0934 Version #: 02 Revision date: 05-05-2020 Issue date: 06-19-2019

SDS US 3 / 10
Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

<table>
<thead>
<tr>
<th>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)</th>
<th>Components</th>
<th>Type</th>
<th>Value</th>
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<tbody>
<tr>
<td>Methyl Methacrylate (CAS 80-62-6)</td>
<td>PEL</td>
<td></td>
<td>410 mg/m3</td>
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<td></td>
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<td>100 ppm</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>US. ACGIH Threshold Limit Values Components</th>
<th>Type</th>
<th>Value</th>
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<tbody>
<tr>
<td>METHACRYLIC ACID (CAS 79-41-4)</td>
<td>TWA</td>
<td>20 ppm</td>
</tr>
<tr>
<td>Methyl Methacrylate (CAS 80-62-6)</td>
<td>STEL</td>
<td>100 ppm</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>50 ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. NIOSH: Pocket Guide to Chemical Hazards Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHACRYLIC ACID (CAS 79-41-4)</td>
<td>TWA</td>
<td>70 mg/m3</td>
</tr>
<tr>
<td>Methyl Methacrylate (CAS 80-62-6)</td>
<td>TWA</td>
<td>410 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100 ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. Workplace Environmental Exposure Level (WEEL) Guides Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,n-dimethyl-p-toluidine (CAS 99-97-8)</td>
<td>TWA</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td>TRIMETHYLOLPROPANE TRIMETHACRYLATE (CAS 3290-92-4)</td>
<td>TWA</td>
<td>1 mg/m3</td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US - California OELs: Skin designation
METHACRYLIC ACID (CAS 79-41-4) Can be absorbed through the skin.

US - Tennessee OELs: Skin designation
METHACRYLIC ACID (CAS 79-41-4) Can be absorbed through the skin.

US NIOSH Pocket Guide to Chemical Hazards: Skin designation
METHACRYLIC ACID (CAS 79-41-4) Can be absorbed through the skin.

US WEEL Guides: Skin designation
TRIMETHYLOLPROPANE TRIMETHACRYLATE (CAS 3290-92-4) Can be absorbed through the skin.

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection
Chemical respirator with organic vapor cartridge and full facepiece.
Skin protection
Hand protection
Wear appropriate chemical resistant gloves.

Other
Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection
Chemical respirator with organic vapor cartridge and full facepiece.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations
Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Paste</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Form</td>
<td>Paste</td>
</tr>
<tr>
<td>Color</td>
<td>Off-white</td>
</tr>
<tr>
<td>Odor</td>
<td>Fragrant</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>-54.4 °F (-48 °C) estimated</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>212.9 °F (100.5 °C) estimated</td>
</tr>
<tr>
<td>Flash point</td>
<td>50.0 °F (10.0 °C) estimated</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td></td>
</tr>
<tr>
<td>Flammability limit - lower (%)</td>
<td>2.1 % estimated</td>
</tr>
<tr>
<td>Flammability limit - upper (%)</td>
<td>12.5 % estimated</td>
</tr>
<tr>
<td>Explosive limit - lower (%)</td>
<td>Not available</td>
</tr>
<tr>
<td>Explosive limit - upper (%)</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>28 mm Hg @ 68 F</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>Not available</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>154 °F (67.78 °C) estimated</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available</td>
</tr>
<tr>
<td>Other information</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>0.95 g/cm³ estimated</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Flammability class</td>
<td>Flammable IB estimated</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not oxidizing</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>0.95 estimated</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

Reactivity
The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability
Material is stable under normal conditions.
Possibility of hazardous reactions
Hazardous polymerization does not occur.

Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.

Incompatible materials

Hazardous decomposition products
No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

- **Inhalation**
  - Harmful if inhaled.

- **Skin contact**
  - Causes severe skin burns. Harmful in contact with skin. May cause an allergic skin reaction.

- **Eye contact**
  - Causes serious eye damage.

- **Ingestion**
  - Causes digestive tract burns.

Symptoms related to the physical, chemical and toxicological characteristics
Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Information on toxicological effects

- **Acute toxicity**
  - Harmful if inhaled. Harmful in contact with skin.

Components

<table>
<thead>
<tr>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHACRYLIC ACID (CAS 79-41-4)</td>
<td></td>
</tr>
<tr>
<td>Acute Dermal</td>
<td></td>
</tr>
<tr>
<td>LD50 Rabbit 500 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
</tr>
<tr>
<td>LC50 Rat 7.1 mg/l, 4 Hours</td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>LD50 Rat 1060 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Methyl Methacrylate (CAS 80-62-6)</td>
<td></td>
</tr>
<tr>
<td>Acute Inhalation</td>
<td></td>
</tr>
<tr>
<td>LC50 Mouse 18.5 mg/l, 2 Hours</td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>LD50 Rat 7800 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Causes severe skin burns and eye damage.

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitization

- ACGIH sensitization
  - METHYL METHACRYLATE (CAS 80-62-6) Dermal sensitization
  - Due to partial or complete lack of data the classification is not possible.

- Respiratory sensitization
  - Due to partial or complete lack of data the classification is not possible.

- Skin sensitization
  - May cause an allergic skin reaction.

- Germ cell mutagenicity
  - Due to partial or complete lack of data the classification is not possible.

- Carcinogenicity
  - Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

- Methyl Methacrylate (CAS 80-62-6) 3 Not classifiable as to carcinogenicity to humans.
- Styrene/butadiene Copolymer (CAS 9003-55-8) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens
Not listed.

Reproductive toxicity
Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
Due to partial or complete lack of data the classification is not possible.

Chronic effects
Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability
No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

<table>
<thead>
<tr>
<th>Component</th>
<th>log Kow</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHACRYLIC ACID</td>
<td>0.93</td>
</tr>
<tr>
<td>Methyl Methacrylate</td>
<td>1.38</td>
</tr>
</tbody>
</table>

Mobility in soil
No data available.

Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
D001: Waste Flammable material with a flash point <140 F
D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number                  UN1133
UN proper shipping name    Adhesives, containing a flammable liquid, Limited Quantity
Transport hazard class(es) Class 3
                          Subsidiary risk -
                          Label(s) 3
Packing group              III
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions          B1, B52, IB3, T2, TP1
Packaging exceptions       150
Packaging non bulk         173
Packaging bulk             242

IATA

UN number                  UN1133
UN proper shipping name    Adhesives containing flammable liquid, Limited Quantity
Transport hazard class(es) Class 3
                          Subsidiary risk -
                          Packing group III
Environmental hazards      No.
ERG Code                   3L
15. Regulatory information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration
Methyl Methacrylate (CAS 80-62-6) % 1.0

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance
Methyl Methacrylate (CAS 80-62-6) Listed.

Toxic Substances Control Act (TSCA)
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)
Methyl Methacrylate (CAS 80-62-6) Listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.
Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

<table>
<thead>
<tr>
<th>Classified hazard categories</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable (gases, aerosols, liquids, or solids)</td>
<td></td>
</tr>
<tr>
<td>Acute toxicity (any route of exposure)</td>
<td></td>
</tr>
<tr>
<td>Skin corrosion or irritation</td>
<td></td>
</tr>
<tr>
<td>Serious eye damage or eye irritation</td>
<td></td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td></td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td></td>
</tr>
<tr>
<td>Specific target organ toxicity (single or repeated exposure)</td>
<td></td>
</tr>
<tr>
<td>Hazard not otherwise classified (HNOC)</td>
<td></td>
</tr>
</tbody>
</table>

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl Methacrylate</td>
<td>80-62-6</td>
<td>40 - 60</td>
</tr>
</tbody>
</table>

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Methyl Methacrylate (CAS 80-62-6)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Contains component(s) regulated under the Safe Drinking Water Act.

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

Methyl Methacrylate (CAS 80-62-6) Low priority

US state regulations

California Proposition 65

WARNING: This product can expose you to N,n-dimethyl-p-toluine, which is known to the State of California to cause cancer, and Ethylene Glycol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance


California Proposition 65 - CRT: Listed date/Developmental toxin

Ethylene Glycol (CAS 107-21-1) Listed: June 19, 2015

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Methyl Methacrylate (CAS 80-62-6)

N,n-dimethyl-p-toluine (CAS 99-97-8)

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>No</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>No</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Taiwan Chemical Substance Inventory (TCSI)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).
16. Other information, including date of preparation or last revision

**Issue date**
06-19-2019

**Revision date**
05-05-2020

**Version #**
02

**HMIS® ratings**
- Health: 2
- Flammability: 3
- Physical hazard: 0

**NFPA ratings**
- Health: 2
- Flammability: 3
- Instability: 0

**Disclaimer**
ITW Performance Polymers cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release.
SAFETY DATA SHEET

1. Identification

Product identifier: PLEXUS® MA420-AO420 EU Black Activator

Other means of identification:

SKU#: 0666

Recommended use: Not available.

Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name: ITW Performance Polymers
Address: 30 Endicott Street, Danvers, MA 01923, United States
Telephone: Customer Service 978-777-1100
Website: www.itwperformancepolymers.com
E-mail: Not available.
Contact person: EHS Department
Emergency phone number:

Chemtrec 800-424-9300
International 703-527-3887

2. Hazard(s) identification

Physical hazards: Organic peroxides Type F

Health hazards:

Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 2A
Sensitization, skin Category 1

Environmental hazards: Not classified.

OSHA defined hazards: Not classified.

Label elements

Signal word: Warning

Hazard statement: Heating may cause a fire. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.

Precautionary statement

Prevention
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep/Store away from clothing and other combustible materials. Keep only in original container. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/eye protection/face protection.

Response
If on skin: Wash with plenty of water. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.

Storage
Protect from sunlight. Store at temperatures not exceeding 25°C / 77°F. Keep cool. Store away from other materials.

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): None known.

Supplemental information: None.
3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Mixtures</th>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dibenzoyl Peroxide</td>
<td></td>
<td>94-36-0</td>
<td>20 - 40</td>
</tr>
<tr>
<td></td>
<td>Epoxy Resin:--reaction Product Of Bisphenol A And Epichlorohydrin (refer To Epichlorohydrin)</td>
<td>EPOXY RESIN</td>
<td>25068-38-6</td>
<td>20 - 40</td>
</tr>
<tr>
<td></td>
<td>Dipropylene glycol dibenzoate</td>
<td></td>
<td>27138-31-4</td>
<td>1 - 2.5</td>
</tr>
<tr>
<td>Other components below reportable levels</td>
<td></td>
<td></td>
<td></td>
<td>40 - 60</td>
</tr>
</tbody>
</table>

4. First-aid measures

**Inhalation**
Move to fresh air. Call a physician if symptoms develop or persist.

**Skin contact**
Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

**Eye contact**
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

**Ingestion**
Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

**Most important symptoms/effects, acute and delayed**
Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

**Indication of immediate medical attention and special treatment needed**
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

**Suitable extinguishing media**
Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
Heating may cause a fire.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Environmental precautions

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Precautions for safe handling

Keep away from heat, sparks and open flame. When using do not smoke. Keep away from clothing and other combustible materials. Avoid breathing mist/vapors. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Keep away from heat, sparks and open flame. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Keep only in the original container. Store away from other materials.

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzoyl Peroxide (CAS 94-36-0)</td>
<td>PEL</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzoyl Peroxide (CAS 94-36-0)</td>
<td>TWA</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzoyl Peroxide (CAS 94-36-0)</td>
<td>TWA</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles). Face shield is recommended.

Skin protection

Hand protection

Wear appropriate chemical resistant gloves.

Other

Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Viscous. Liquid.
<table>
<thead>
<tr>
<th><strong>Physical state</strong></th>
<th>Liquid.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Form</strong></td>
<td>Viscous. Liquid.</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Natural color.</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Slight.</td>
</tr>
<tr>
<td><strong>Odor threshold</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Melting point/freezing point</strong></td>
<td>217.4 °F (103 °C) estimated</td>
</tr>
<tr>
<td><strong>Initial boiling point and boiling range</strong></td>
<td>608 °F (320 °C) estimated</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>265.0 °F (129.4 °C) estimated</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Upper/lower flammability or explosive limits</strong></td>
<td></td>
</tr>
<tr>
<td>Flammability limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability limit - upper (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive limit - upper (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
<td>0.00005 hPa estimated</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Solubility(ies)</strong></td>
<td></td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Auto-ignition temperature</strong></td>
<td>176 °F (80 °C) estimated</td>
</tr>
<tr>
<td><strong>Decomposition temperature</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Other information</strong></td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>1.16 g/cm³ estimated</td>
</tr>
<tr>
<td><strong>Explosive properties</strong></td>
<td>Not explosive.</td>
</tr>
<tr>
<td><strong>Flammability class</strong></td>
<td>Combustible IIIB estimated</td>
</tr>
<tr>
<td><strong>Oxidizing properties</strong></td>
<td>Not oxidizing.</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.16 estimated</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability** Material is stable under normal conditions.

**Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.

**Conditions to avoid** Avoid heat, sparks, open flames and other ignition sources. Sunlight. Contact with incompatible materials.


**Hazardous decomposition products** No hazardous decomposition products are known.

11. Toxicological information

**Information on likely routes of exposure**

<table>
<thead>
<tr>
<th>Route</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inhalation</strong></td>
<td>Prolonged inhalation may be harmful.</td>
</tr>
<tr>
<td><strong>Skin contact</strong></td>
<td>Causes skin irritation. May cause an allergic skin reaction.</td>
</tr>
<tr>
<td><strong>Eye contact</strong></td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td>Knowledge about health hazard is incomplete.</td>
</tr>
</tbody>
</table>

Material name: PLEXUS® MA420-AO420 EU Black Activator

0666 Version #: 03 Revision date: 05-05-2020 Issue date: 06-16-2019

SDS US 4 / 7
Symptoms related to the physical, chemical and toxicological characteristics

Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity

Not known.

Components

<table>
<thead>
<tr>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzoyl Peroxide (CAS 94-36-0)</td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>LD50 Rat</td>
<td>7710 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitization

Due to partial or complete lack of data the classification is not possible.

Respiratory sensitization

May cause an allergic skin reaction.

Skin sensitization

Due to partial or complete lack of data the classification is not possible.

Germ cell mutagenicity

Due to partial or complete lack of data the classification is not possible.

Carcinogenicity

Due to partial or complete lack of data the classification is not possible.

IARC Monographs. Overall Evaluation of Carcinogenicity

Dibenzoyl Peroxide (CAS 94-36-0) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity

Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - single exposure

Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - repeated exposure

Due to partial or complete lack of data the classification is not possible.

Aspiration hazard

Due to partial or complete lack of data the classification is not possible.

Chronic effects

Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability

No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Dibenzoyl Peroxide 3.46

Mobility in soil

No data available.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
14. Transport information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

Transport in bulk according to
Annex II of MARPOL 73/78 and
the IBC Code
Not established.

15. Regulatory information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration
Dibenzoyl Peroxide (CAS 94-36-0) % 1.0

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance
Dibenzoyl Peroxide (CAS 94-36-0) Listed.

Toxic Substances Control Act (TSCA)
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)
SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
Yes

 Classified hazard categories
 Organic peroxide
 Skin corrosion or irritation
 Serious eye damage or eye irritation
 Respiratory or skin sensitization

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzoyl Peroxide</td>
<td>94-36-0</td>
<td>20 - 40</td>
</tr>
</tbody>
</table>

Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Contains component(s) regulated under the Safe Drinking Water Act.

US state regulations
California Proposition 65
WARNING: This product can expose you to chemicals including BUTADIENE, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance
BUTADIENE (CAS 106-99-0) Listed: April 1, 1988
Ethyl Acrylate (CAS 140-88-5) Listed: July 1, 1989
Formaldehyde (CAS 50-00-0) Listed: January 1, 1988
California Proposition 65 - CRT: Listed date/Developmental toxin
BUTADIENE (CAS 106-99-0)  Listed: April 16, 2004

California Proposition 65 - CRT: Listed date/Female reproductive toxin
BUTADIENE (CAS 106-99-0)  Listed: April 16, 2004

California Proposition 65 - CRT: Listed date/Male reproductive toxin
BUTADIENE (CAS 106-99-0)  Listed: April 16, 2004

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Taiwan Chemical Substance Inventory (TCSI)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

<table>
<thead>
<tr>
<th>Issue date</th>
<th>06-16-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision date</td>
<td>05-05-2020</td>
</tr>
<tr>
<td>Version #</td>
<td>03</td>
</tr>
</tbody>
</table>

HMIS® ratings

- Health: 2
- Flammability: 1
- Physical hazard: 1

NFPA ratings

- Health: 2
- Flammability: 1
- Instability: 1

Disclaimer

ITW Performance Polymers cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release.
1. Identification

Product Identifier
Product name: QSil Primer #8

Other means of identification

Recommended use of the chemical and restrictions on use
Recommended use: Industrial silicone elastomer.
Application: FOR INDUSTRIAL USE ONLY

Details of the Supplier of the Safety Data Sheet

Supplier: CHT
Manufacturer Address: CHT
7820 Whitepine Rd
Richmond, VA 23237

Emergency Telephone Number
Company Phone Number: 800-852-3147 (8AM - 5PM EST)
Emergency telephone: Chemtrec 1-800-424-9300

2. Hazards Identification

Classification
OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Carcinogenicity</th>
<th>Category 1A</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAMMABLE LIQUIDS</td>
<td>Category 2</td>
</tr>
</tbody>
</table>

Label Elements

EMERGENCY OVERVIEW

hazard statements
May cause cancer
Highly flammable liquid and vapor

Appearance: Liquid
Physical State: Liquid
Odor: Alcohol

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ ventilating / lighting/ equipment
Use only non-sparking tools
Take precautionary measures against static discharge

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
In case of fire: Use CO2, dry chemical, or foam for extinction

Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards Not Otherwise Classified (HNOC)
Not Applicable

OTHER INFORMATION
Toxic to aquatic life with long lasting effects. Toxic to aquatic life.

3. Composition/information on Ingredients

<table>
<thead>
<tr>
<th>Substance</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Mixture</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>weight-%</th>
<th>Trade secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>60 - 100</td>
<td>*</td>
</tr>
</tbody>
</table>

4. First aid measures

Description of first aid measures

General Advice
Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). If symptoms persist, call a physician.

Eye Contact
In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

Skin Contact
Wash off immediately with plenty of water. Wash contaminated clothing before reuse. If skin irritation persists, call a physician. Immediate medical attention is not required. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

INHALATION
Move victim to fresh air. If breathing is irregular or stopped, administer artificial respiration. Administer oxygen if breathing is difficult. Remove to fresh air. Artificial respiration and/or oxygen may be necessary. Call a physician. Immediate medical attention is not required. Move to fresh air in case of accidental inhalation of vapors. If symptoms persist, call a physician.

INGESTION
Do NOT induce vomiting. Rinse mouth. Drink plenty of water. If symptoms persist, call a physician. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Call a physician.
Self-Protection of the First Aider
Remove all sources of ignition. Use personal protective equipment as required.

Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms
No information available.

Indication of Any Immediate Medical Attention and Special Treatment Needed

Note to physicians
Keep victim warm and quiet. Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media
Dry chemical, CO2, water spray or regular foam. Water spray, fog or regular foam. Use water spray or fog; do not use straight streams.

Unsuitable Extinguishing Media
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Specific Hazards Arising from the Chemical
Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a "P" may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Substance may be transported hot. FLAMMABLE.

Explosion Data
Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.

Protective Equipment and Precautions for Firefighters
Move containers from fire area if you can do it without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal Precautions
Remove all sources of ignition. Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Use personal protective equipment as required. Keep people away from and upwind of spill/leak.

OTHER INFORMATION
Water spray may reduce vapor; but may not prevent ignition in closed spaces.

Environmental Precautions

Environmental Precautions
Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment
A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

Methods for Cleaning Up
Dam up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Pick up and transfer to properly labeled containers. Soak up with inert absorbent material.

7. Handling and Storage

Precautions for Safe Handling

Advice on safe handling
Ensure adequate ventilation, especially in confined areas. Keep away from heat, sparks,
flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. All equipment used when handling the product must be grounded. Use with local exhaust ventilation. Use personal protective equipment as required. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep tightly closed in a dry and cool place. Keep in properly labeled containers. Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity).

Incompatible materials
None known based on information supplied.

8. Exposure Controls/Personal Protection

Control Parameters

Ingredients with workplace exposure parameters

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol 64-17-5</td>
<td>STEL: 1000 ppm</td>
<td>TWA: 1000 ppm</td>
<td>TWA: 1900 mg/m³ (vacated) TWA: 1000 ppm (vacated) TWA: 1900 mg/m³</td>
</tr>
</tbody>
</table>

NIOSH IDLH Immediately Dangerous to Life or Health

OTHER INFORMATION
Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate Engineering Controls

Engineering controls
Showers
Eyewash stations

Individual protection measures, such as personal protective equipment

Eye/Face Protection
Tight sealing safety goggles. Face protection shield.

Skin and Body Protection
Wear protective gloves and protective clothing.

Respiratory Protection
Do not breathe gas/fumes/vapor/spray. Ensure adequate ventilation, especially in confined areas.

General hygiene considerations
When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>VALUES</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Liquid</td>
<td>Odor</td>
</tr>
<tr>
<td>Color</td>
<td>Clear</td>
<td>Odor threshold</td>
</tr>
<tr>
<td>Odor</td>
<td>Alcohol</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Melting point / Freezing point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Boiling point / Boiling range</td>
<td>&gt;= 98 °C / 208 °F</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 15 °C / &gt; 59 °F</td>
<td>CC (closed cup)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>
Flammability limit in air

Upper flammability limit: No information available
Lower flammability limit: No information available

Vapor pressure: No information available
Vapor density: No information available
Relative density: No information available
Water solubility: No information available
Solubility in other solvents: No information available
Partition coefficient: No information available
Autoignition temperature: No information available
Decomposition temperature: No information available
Kinematic viscosity: No information available
Dynamic viscosity: No information available
Explosive properties: Not an explosive
Oxidizing properties: This product is not an oxidizing agent

OTHER INFORMATION

Softening point: No information available
Molecular weight: No information available
VOC content (%): No information available
Density: 0.77
Bulk density: No information available

10. Stability and Reactivity

Reactivity
No data available

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
None under normal processing.

Conditions to avoid
Heat, flames and sparks.

Incompatible materials
None known based on information supplied.

Hazardous decomposition products
None known based on information supplied.

11. Toxicological Information

Information on Likely Routes of Exposure

Product information
No data available.

INHALATION
No data available.

Eye Contact
No data available.

Skin Contact
No data available.

INGESTION
No data available.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Oral LD50</th>
<th>dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>= 7060 mg/kg (Rat)</td>
<td>-</td>
<td>= 124.7 mg/L (Rat) 4 h</td>
</tr>
</tbody>
</table>
Information on Toxicological Effects

Symptoms

No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

sensitization

No information available.

Germ Cell Mutagenicity

No information available.

carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen. This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>A3</td>
<td>Group 1</td>
<td>Known</td>
<td>X</td>
</tr>
</tbody>
</table>

ACGIH (American Conference of Governmental Industrial Hygienists)
A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans

NTP (National Toxicology Program)
Known - Known Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

Reproductive Toxicity

No information available.

STOT - Single Exposure

No information available.

STOT - Repeated Exposure

No information available.

Chronic Toxicity

Avoid repeated exposure. May cause adverse effects on the bone marrow and blood-forming system. May cause adverse liver effects. Contains a known or suspected reproductive toxin.

Target organ effects

Blood, EYES, Kidney, Liver, Respiratory System, skin, Central Nervous System, Reproductive system.

Aspiration Hazard

No information available.

Numerical Measures of Toxicity - Product information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 7,085.00 mg/kg

ATEmix (inhalation-dust/mist) 125.10 mg/l

Ecotoxicity

Toxic to aquatic life with long lasting effects

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>-</td>
<td>12.0 - 16.0: 96 h Oncorhynchus mykiss mL/L LC50 static 100: 96 h Pimephales promelas mg/L LC50 static 13400 - 15100: 96 h Pimephales promelas mg/L LC50 flow-through</td>
<td>10800: 24 h Daphnia magna mg/L EC50 9268 - 14221: 48 h Daphnia magna mg/L LC50 2: 48 h Daphnia magna mg/L EC50 Static</td>
</tr>
</tbody>
</table>

Persistence and Degradability

No information available.

Bioaccumulation

No information available.
Other Adverse Effects
No information available

13. Disposal Considerations

Waste Treatment Methods

Disposal of wastes
This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).

Contaminated Packaging
Do not reuse container.

US EPA Waste Number
D001 U031

This product contains one or more substances that are listed with the State of California as a hazardous waste.

14. Transport Information

DOT
Regulated
UN/ID no
UN1993
Proper Shipping Name
Flammable liquids, n.o.s.
Hazard class
3
Packing group
III
Special Provisions
B1, B52, IB3, T4, TP1, TP29
Description
UN1993, Flammable liquids, n.o.s. (Ethanol, Tetraethylsilicate), 3, III
Emergency Response Guide Number
128

IATA
Regulated
UN/ID no
UN1993
Hazard class
3
Packing group
III
ERG Code
3L
Special Provisions
A3
Description
UN1993, Flammable liquid, n.o.s. (Ethanol, Tetraethylsilicate), 3, III

IMDG
Regulated
UN/ID no
UN1993
Proper Shipping Name
Flammable liquid, n.o.s.
Hazard class
3
Packing group
III
EmS-No
F-E, S-E
Special Provisions
223, 274, 955
Marine Pollutant
This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO

15. Regulatory Information

International Inventories
TSCA
Complies
DSL/NDSL
Complies
EINECS/ELINCS
Complies
ENCS
Complies
IECSC  Complies
KECL  Complies
PICCS  Complies
AICS  Complies
TCSI  Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
TCSI - Taiwan Chemical Substance Inventory

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Health Hazard</th>
<th>Acute Health Hazard</th>
<th>Chronic Health Hazard</th>
<th>Fire Hazard</th>
<th>Sudden Release of Pressure Hazard</th>
<th>Reactive Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

US State Regulations

California Proposition 65
This product contains Proposition 65 chemicals

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Proposition 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol - 64-17-5</td>
<td>Carcinogen</td>
</tr>
<tr>
<td></td>
<td>Developmental</td>
</tr>
</tbody>
</table>

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol 64-17-5</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tetraethylsilicate 78-10-4</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. EPA Label information
EPA Pesticide registration number  Not Applicable

16. Other information, including date of preparation of the last revision

NFPA             Health Hazards 2  Flammability 3  Instability 0  -
HMIS              Health Hazards 2  Flammability 3  Physical Hazards 0  -
Issue date 08-Dec-2015
Revision date 09-Aug-2017
Revision note No information available

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the
date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage,
transportation, disposal and release and is not to be considered a warranty or quality specification. The information
relates only to the specific material designated and may not be valid for such material used in combination with any other
materials or in any process, unless specified in the text.

End of Safety Data Sheet
SECTIO1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: NOROX PBC-21

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture: Curing chemical

1.3 Details of the supplier of the safety data sheet

Company: United Initiators GmbH & Co. KG
Dr. Gustav-Adolph-Str. 3
D-82049 Pullach

E-mail address of person responsible for the SDS: contact@united-in.com

1.4 Emergency telephone number

+49 / 89 / 74422 – 0 (24 h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Organic peroxides, Type D
H242: Heating may cause a fire.

Acute toxicity, Category 4
H332: Harmful if inhaled.

Skin corrosion, Category 1B
H314: Causes severe skin burns and eye damage.

Serious eye damage, Category 1
H318: Causes serious eye damage.

Skin sensitisation, Category 1
H317: May cause an allergic skin reaction.

Specific target organ toxicity - single exposure, Category 3, Respiratory system
H335: May cause respiratory irritation.

Specific target organ toxicity - repeated exposure, Category 2
H373: May cause damage to organs through prolonged or repeated exposure.

Acute aquatic toxicity, Category 1
H400: Very toxic to aquatic life.

Chronic aquatic toxicity, Category 3
H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)
Hazard pictograms

Signal word: Danger

Hazard statements:
- H242 Heating may cause a fire.
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H332 Harmful if inhaled.
- H335 May cause respiratory irritation.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention:
- P220 Keep/Store away from clothing/ strong acids, bases, heavy metal salts and other reducing substances /combustible materials.
- P233 Keep container tightly closed.
- P235 Keep cool.
- P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
- P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
- P262 Do not get in eyes, on skin, or on clothing.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308 + P313 IF exposed or concerned: Get medical advice/ attention.
- P314 Get medical advice/ attention if you feel unwell.
- P315 Get immediate medical advice/ attention.
- P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
- P362 + P364 Take off contaminated clothing and wash it before reuse.

Disposal:
- P501 Dispose of contents/ container to an ap-
proven waste disposal plant.

Hazardous components which must be listed on the label:

- tert-Butyl perbenzoate (CAS-No. 614-45-9)
- Cumene hydroperoxide (CAS-No. 80-15-9)

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature: Organic Peroxide
Liquid mixture

Hazardous components

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No. EC-No. Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>tert-Butyl perbenzoate</td>
<td>614-45-9 210-382-2 01-2119513317-46</td>
<td>Org. Perox. C; H242 Acute Tox. 4; H332 Skin Irrit. 2; H315 Skin Sens. 1A; H317 Aquatic Acute 1; H400 Aquatic Chronic 3; H412</td>
<td>&gt;= 40 - &lt; 45</td>
</tr>
<tr>
<td>Methyl Acetoacetate</td>
<td>105-45-3 203-299-8 01-2119451095-43</td>
<td>Eye Irrit. 2; H319</td>
<td>&gt;= 20 - &lt; 25</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>80-15-9 201-254-7 01-2119475796-19</td>
<td>Flam. Liq. 3; H226 Org. Perox. E; H242 Acute Tox. 4; H302 Acute Tox. 3; H331 Acute Tox. 4; H312 Skin Corr. 1B; H314 Eye Dam. 1; H318 STOT RE 2; H373 Aquatic Chronic 2; H411</td>
<td>&gt;= 15 - &lt; 20</td>
</tr>
<tr>
<td>Cumene</td>
<td>98-82-8 202-704-5 01-2119473983-24</td>
<td>Flam. Liq. 3; H226 STOT SE 3; H335 Asp. Tox. 1; H304 Aquatic Chronic 2; H411</td>
<td>&gt;= 2,5 - &lt; 5</td>
</tr>
</tbody>
</table>

For explanation of abbreviations see section 16.

SECTION 4: First aid measures
4.1 Description of first aid measures

General advice:
- Move out of dangerous area.
- Show this safety data sheet to the doctor in attendance.
- Do not leave the victim unattended.
- Symptoms of poisoning may appear several hours later.
- Call a physician immediately.

Protection of first-aiders:
- First Aid responders should pay attention to self-protection and use the recommended protective clothing.

If inhaled:
- Call a physician or poison control centre immediately.
- If unconscious place in recovery position and seek medical advice.
- Keep respiratory tract clear.
- Call a physician immediately.
- If breathed in, move person into fresh air.

In case of skin contact:
- In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing before re-use.
- If on skin, rinse well with water.
- If on clothes, remove clothes.
- If symptoms persist, call a physician.

In case of eye contact:
- Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
- In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- Continue rinsing eyes during transport to hospital.
- Remove contact lenses.
- Protect unharmed eye.
- Keep eye wide open while rinsing.
- If eye irritation persists, consult a specialist.

If swallowed:
- Keep respiratory tract clear.
- Do NOT induce vomiting.
- Call a physician immediately.
- Rinse mouth thoroughly with water.

4.2 Most important symptoms and effects, both acute and delayed

Risks:
- May cause an allergic skin reaction.
- Causes serious eye damage.
- Harmful if inhaled.
- May cause respiratory irritation.
- May cause damage to organs through prolonged or repeated exposure.
- Causes severe burns.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment:
- Treat symptomatically and supportively.
SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:
- Water spray
- Alcohol-resistant foam
- Carbon dioxide (CO2)
- Dry chemical

Unsuitable extinguishing media:
- High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting:
- Contact with incompatible materials or exposure to temperatures exceeding SADT may result in a self-accelerating decomposition reaction with release of flammable vapors which may auto-ignite.
- Flash back possible over considerable distance.
- Vapours may form explosive mixtures with air.
- The product will float on water and can be reignited on surface water.
- Cool closed containers exposed to fire with water spray.

5.3 Advice for firefighters

Special protective equipment for firefighters:
- Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

Specific extinguishing methods:
- Do not use a solid water stream as it may scatter and spread fire.
- Remove undamaged containers from fire area if it is safe to do so.
- Use water spray to cool unopened containers.

Further information:
- Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
- Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions:
- Use personal protective equipment.
- Remove all sources of ignition.
- Follow safe handling advice and personal protective equipment recommendations.
- Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- Never return spills in original containers for re-use.
- Treat recovered material as described in the section "Disposal considerations".
6.2 Environmental precautions

Environmental precautions:
- Prevent product from entering drains.
- Prevent further leakage or spillage if safe to do so.
- If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up:
- Contact with incompatible substances can cause decomposition at or below SADT.
- Clear spills immediately.
- Suppress (knock down) gases/vapours/mists with a water spray jet.
- To clean the floor and all objects contaminated by this material, use plenty of water.
- Soak up with inert absorbent material.
- Isolate waste and do not reuse.
- Non-sparking tools should be used.
- Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures:
- See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Advice on safe handling:
- Do not swallow.
- Do not breathe vapours/dust.
- Avoid exposure - obtain special instructions before use.
- Avoid contact with skin and eyes.
- Avoid formation of aerosol.
- Take precautionary measures against static discharges.
- Never return any product to the container from which it was originally removed.
- Provide sufficient air exchange and/or exhaust in work rooms.
- Avoid confinement.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Smoking, eating and drinking should be prohibited in the application area.
- Wash thoroughly after handling.
- For personal protection see section 8.
- Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Protect from contamination.

Advice on protection against fire and explosion: Keep away from heat and sources of ignition. Use only explosion-proof equipment. Keep away from combustible material.

Hygiene measures: Keep away from food and drink. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Avoid impurities (e.g. rust, dust, ash), risk of decomposition. Electrical installations / working materials must comply with the technological safety standards. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in original container. Keep containers tightly closed in a cool, well-ventilated place. Store in accordance with the particular national regulations.

Advice on common storage: Keep away from strong acids, bases, heavy metal salts and other reducing substances.

Storage class (TRGS 510): 5.2, Organic peroxides and self-reacting hazardous materials

Recommended storage temperature: < 30 °C

Other data: No decomposition if stored normally.

7.3 Specific end use(s)

Specific use(s): For further information, refer to the product technical data sheet.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

### Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumene</td>
<td>Cumene</td>
<td>TWA</td>
<td>20 ppm 100 mg/m³</td>
<td>2000/39/EC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>50 ppm 250 mg/m³</td>
<td>2000/39/EC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AGW</td>
<td>10 ppm 50 mg/m³</td>
<td>DE TRGS 900</td>
</tr>
<tr>
<td>Peak-limit: excursion factor (category)</td>
<td>4;(II)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Further information: Commission for dangerous substances, Senate commission for the review of...
compounds at the workplace dangerous for the health (MAK-commission). European Union (The EU has established a limit value: deviations in value and peak limit are possible), Skin absorption, When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child.

### Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>tert-Butyl perbenzoate</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>4 mg/m3</td>
</tr>
<tr>
<td>tert-Butyl perbenzoate</td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>6.25 mg/kg bw/day</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>6 mg/m3</td>
</tr>
</tbody>
</table>

### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>tert-Butyl perbenzoate</td>
<td>Fresh water</td>
<td>0.0088 mg/l</td>
</tr>
<tr>
<td>tert-Butyl perbenzoate</td>
<td>Marine water</td>
<td>0.0009 mg/l</td>
</tr>
<tr>
<td>tert-Butyl perbenzoate</td>
<td>Intermittent use/release</td>
<td>0.008 mg/l</td>
</tr>
<tr>
<td>tert-Butyl perbenzoate</td>
<td>Sewage treatment plant</td>
<td>0.6 mg/l</td>
</tr>
<tr>
<td>tert-Butyl perbenzoate</td>
<td>Fresh water sediment</td>
<td>0.24 mg/kg</td>
</tr>
<tr>
<td>tert-Butyl perbenzoate</td>
<td>Marine sediment</td>
<td>0.024 mg/kg</td>
</tr>
<tr>
<td>tert-Butyl perbenzoate</td>
<td>Soil</td>
<td>0.043 mg/kg</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>Fresh water</td>
<td>0.0031 mg/l</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>Marine water</td>
<td>0.00031 mg/l</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>Intermittent use/release</td>
<td>0.031 mg/l</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>Sewage treatment plant</td>
<td>0.35 mg/l</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>Fresh water sediment</td>
<td>0.023 mg/kg</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>Marine sediment</td>
<td>0.0023 mg/kg</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>Soil</td>
<td>0.0029 mg/kg</td>
</tr>
</tbody>
</table>

### 8.2 Exposure controls

#### Engineering measures
Minimize workplace exposure concentrations.

#### Personal protective equipment

<table>
<thead>
<tr>
<th>Eye protection</th>
<th>Tightly fitting safety goggles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.</td>
</tr>
<tr>
<td></td>
<td>Ensure that eyewash stations and safety showers are close to the workstation location.</td>
</tr>
</tbody>
</table>
Hand protection
Material: butyl-rubber
Break through time: >= 480 min
Glove thickness: 0,5 mm
Remarks: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Skin and body protection: Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.

Respiratory protection: In the case of dust or aerosol formation use respirator with an approved filter.

Filter type: ABEK-filter

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
Appearance: liquid
Colour: Colorless to pale yellow
Odour: aromatic
Flash point: 74 °C
Flammability (solid, gas): Not applicable
Vapour pressure: > 3 hPa
Density: 1,08 g/cm3

Solubility(ies)
Water solubility: insoluble

Viscosity
Viscosity, dynamic: 6 mPa.s (20 °C)

Oxidizing properties: The substance or mixture is not classified as oxidizing. Organic peroxide

9.2 Other information
Self-Accelerating decomposition temperature (SADT): 55 °C
SADT-Self Accelerating Decomposition Temperature. Lowest
temperature at which the tested package size will undergo a self-accelerating decomposition reaction.

Refractive index : 1,491

SECTION 10: Stability and reactivity

10.1 Reactivity
Stable under recommended storage conditions.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Hazardous reactions : Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Conditions to avoid : Protect from contamination.
Contact with incompatible substances can cause decomposition at or below SADT.
Heat, flames and sparks.
Avoid confinement.

10.5 Incompatible materials
Materials to avoid : Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents

10.6 Hazardous decomposition products
Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Harmful if inhaled.

Product:
Acute oral toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 1,68 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Components:
tert-Butyl perbenzoate:
Acute oral toxicity: LD0 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 423

Acute inhalation toxicity: LC50 (Rat): > 1,01 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 436
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity: LD0 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 402

Methyl Acetoacetate:
Acute oral toxicity:
LD50 (Rat, male): 2.580 mg/kg
Method: OECD Test Guideline 401
LD50 (Rat, female): 3.370 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity: LC50 (Rabbit): > 49 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity: LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 402

Cumene hydroperoxide:
Acute oral toxicity:
LD50 (Rat): 382 mg/kg

Acute inhalation toxicity: Acute toxicity estimate: 2,01 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Expert judgement
Assessment: The component/mixture is toxic after short term inhalation.

Acute dermal toxicity: Acute toxicity estimate: 1.100 mg/kg
Method: Expert judgement

Cumene:
Acute oral toxicity: LD50 (Rat): 2.700 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity: LD50 (Rabbit): > 3.160 mg/kg

Skin corrosion/irritation
Causes severe burns.

Product:
Remarks: Extremely corrosive and destructive to tissue.
Components:
tert-Butyl perbenzoate:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation

Methyl Acetoacetate:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Cumene hydroperoxide:
Species: Rabbit
Result: Causes burns.

Cumene:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Serious eye damage/eye irritation
Causes serious eye damage.

Product:
Remarks: May cause irreversible eye damage.

Components:
tert-Butyl perbenzoate:
Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation

Methyl Acetoacetate:
Species: Rabbit
Method: OECD Test Guideline 405
Result: Eye irritation

Cumene hydroperoxide:
Species: Rabbit
Result: Corrosive

Cumene:
Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation

Respiratory or skin sensitisation
Skin sensitisation: May cause an allergic skin reaction.
Respiratory sensitisation: Not classified based on available information.

Product:
Remarks: Causes sensitisation.
Components:

tert-Butyl perbenzoate:
Species: Mouse
Method: OECD Test Guideline 429
Result: Probability or evidence of high skin sensitisation rate in humans
Remarks: May cause sensitisation by skin contact.

Methyl Acetoacetate:
Exposure routes: Skin contact
Species: Mouse
Method: OECD Test Guideline 429
Result: Does not cause skin sensitisation.

Cumene hydroperoxide:
Result: Does not cause skin sensitisation.

Cumene:
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

Germ cell mutagenicity
Not classified based on available information.

Components:

tert-Butyl perbenzoate:
Genotoxicity in vitro
- Test Type: Bacterial reverse mutation assay (AMES)
  Method: OECD Test Guideline 471
  Result: positive
- Test Type: In vitro mammalian cell gene mutation test
  Method: OECD Test Guideline 476
  Result: positive
- Test Type: Chromosome aberration test in vitro
  Method: OECD Test Guideline 473
  Result: positive
- Test Type: Mouse Lymphoma
  Result: positive

Genotoxicity in vivo
- Test Type: Micronucleus test
  Species: Mouse (male and female)
  Application Route: Oral
  Result: negative

Methyl Acetoacetate:
Genotoxicity in vitro
- Method: OECD Test Guideline 476
  Result: negative
- Method: OECD Test Guideline 471
Result: negative

Method: OECD Test Guideline 473
Result: negative

**Cumene hydroperoxide:**
Genotoxicity in vitro:
Result: positive
Remarks: In vitro tests have shown mutagenic effects.

Genotoxicity in vivo:
Test Type: Micronucleus test
Species: Mouse
Application Route: Skin contact
Result: negative

**Cumene:**
Genotoxicity in vitro:
Method: OECD Test Guideline 473
Result: negative

Method: OECD Test Guideline 471
Result: negative

Method: OECD Test Guideline 476
Result: negative

Method: OECD Test Guideline 482
Result: negative

Test Type: Ames test
Result: positive

Genotoxicity in vivo:
Species: Rat
Application Route: Intraperitoneal
Exposure time: 72 h
Method: OECD Test Guideline 474
Result: Equivocal

Species: Mouse
Application Route: Inhalation (gas)
Exposure time: 14 w
Method: OECD Test Guideline 474
Result: negative

**Carcinogenicity**
Not classified based on available information.

**Components:**
**tert-Butyl perbenzoate:**
Remarks: This information is not available.

**Methyl Acetoacetate:**
Remarks: This information is not available.

**Cumene hydroperoxide:**
Remarks: This information is not available.

**Cumene:**
Species: Rat
Application Route: inhalation (gas)
Exposure time: 2 Years
LOAEL: Lowest Observed Effect Concentration: 250
Method: OECD Test Guideline 451

Species: Mouse
Application Route: inhalation (gas)
Exposure time: 2 Years
LOAEL: Lowest Observed Effect Concentration: 125
Method: OECD Test Guideline 451

**Reproductive toxicity**
Not classified based on available information.

**Components:**

**tert-Butyl perbenzoate:**
Effects on fertility: Species: Rat
Application Route: Oral
General Toxicity - Parent: No observed adverse effect level: 300 mg/kg body weight
Method: OECD Test Guideline 421

Effects on foetal development: Species: Rat
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 300 mg/kg body weight
Method: OECD Test Guideline 414

**Methyl Acetoacetate:**
Effects on fertility: Species: Rat
Application Route: Ingestion
General Toxicity - Parent: No observed adverse effect level: > 1,000
Method: OECD Test Guideline 422
Result: negative

**Cumene hydroperoxide:**
Effects on fertility: Remarks: No data available
Effects on foetal development: Remarks: No data available

**Cumene:**
Effects on foetal development: Species: Rabbit
Application Route: inhalation (vapour)
General Toxicity Maternal: Lowest observed adverse effect level: 500
Developmental Toxicity: No observed adverse effect level: 2,300
Method: OECD Test Guideline 414

Species: Rat
Application Route: inhalation (vapour)

General Toxicity Maternal:
No observed adverse effect level: 100

Developmental Toxicity:
No observed adverse effect level: > 1,200

Method: OECD Test Guideline 414

STOT - single exposure
May cause respiratory irritation.

**Components:**
- **Cumene:**
  Assessment: May cause respiratory irritation.

STOT - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

**Components:**
- **Cumene hydroperoxide:**
  Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

**Components:**
- **Methyl Acetoacetate:**
  Species: Rat
  NOAEL: 1,000 mg/kg
  Application Route: Ingestion
  Exposure time: 28 d
  Method: OECD Test Guideline 407

- **Cumene hydroperoxide:**
  Species: Rat
  NOAEL: 0,031 mg/l
  Application Route: inhalation (dust/mist/fume)
  Exposure time: 90 d

- **Cumene:**
  Species: Rat
  NOEL: > 536 mg/kg
  Application Route: oral (feed)

  Species: Rat
  No observed adverse effect level: 125 mg/kg
  Application Route: inhalation (vapour)
  Method: OECD Test Guideline 413
**SAFETY DATA SHEET**
according to Regulation (EC) No. 1907/2006

**NOROX PBC-21**

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<th>Revision Date:</th>
<th>MSDS Number:</th>
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<td>19.08.2016</td>
<td>600000000346</td>
<td>22.08.2016</td>
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**Aspiration toxicity**
Not classified based on available information.

**Components:**
Cumene:
May be fatal if swallowed and enters airways.

**Further information**

**Product:**
Remarks: No data available

---

**SECTION 12: Ecological information**

12.1 Toxicity

**Components:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Toxicity to fish</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>Toxicity to algae</th>
<th>M-Factor (Acute aquatic toxicity)</th>
<th>Toxicity to bacteria</th>
<th>Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)</th>
<th>Methyl Acetoacetate:</th>
</tr>
</thead>
<tbody>
<tr>
<td>tert-Butyl perbenzoate</td>
<td>LC50 (Danio rerio (zebra fish)): 1,6 mg/l Exposure time: 96 h Method: OECD Test Guideline 203</td>
<td>EC50 (Daphnia magna (Water flea)): 11 mg/l Exposure time: 48 h Method: OECD Test Guideline 202</td>
<td>EC50 (Pseudokirchneriella subcapitata (green algae)): 0,8 mg/l Exposure time: 72 h Method: OECD Test Guideline 201</td>
<td>1</td>
<td>EC50: 43 mg/l Exposure time: 0,5 h Method: OECD Test Guideline 209</td>
<td>EC10: 0,49 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211</td>
<td>LC50 (Pimephales promelas (fathead minnow)): &gt; 111,4 mg/l Exposure time: 96 h Method: OECD Test Guideline 203</td>
</tr>
</tbody>
</table>

| NOEC (Pseudokirchneriella subcapitata (green algae)): 0,72 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 |
Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae: NOEC (Desmodesmus subspicatus (green algae)): 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

**Cumene hydroperoxide:**

Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 3,9 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 18 mg/l
Exposure time: 48 h

Toxicity to algae: EC50 (Desmodesmus subspicatus (green algae)): 1,6 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

**Cumene:**

Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 4,8 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 2,14 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae: EC50 (Desmodesmus subspicatus (green algae)): 2,01 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to bacteria: EC50: > 2,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC: 0,35 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

Ecotoxicology Assessment
Chronic aquatic toxicity: Toxic to aquatic life with long lasting effects.

**12.2 Persistence and degradability**

**Components:**

**tert-Butyl perbenzoate:**
Biodegradability: Result: Readily biodegradable
Method: OECD Test Guideline 301D

**Methyl Acetoacetate:**
Biodegradability: Result: Readily biodegradable
Method: OECD Test Guideline 301F

**Cumene hydroperoxide:**
Biodegradability: Result: Not readily biodegradable.
Method: OECD Test Guideline 301B

**Cumene:**
Biodegradability: Result: Readily biodegradable

### 12.3 Bioaccumulative potential

**Components:**

- **tert-Butyl perbenzoate:**
  Partition coefficient: \( \log \text{Pow} \): 2,89 (25 °C)

- **Methyl Acetoacetate:**
  Partition coefficient: \( \log \text{Pow} \): -0,4 (20 °C)

- **Cumene hydroperoxide:**
  Partition coefficient: \( \log \text{Pow} \): 1,6

- **Cumene:**
  Bioaccumulation:
  Bioconcentration factor (BCF): 94,69
  Remarks: Calculation

  Partition coefficient: \( \log \text{Pow} \): 3,55 (23 °C)

### 12.4 Mobility in soil
No data available

### 12.5 Results of PBT and vPvB assessment

**Product:**
Assessment: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Other adverse effects

**Product:**
Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.
Harmful to aquatic life with long lasting effects.
SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product: The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of wastes in an approved waste disposal facility.

Contaminated packaging: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum. Dispose of in accordance with local regulations.

SECTION 14: Transport information

14.1 UN number

- **ADN**: UN 3103
- **ADR**: UN 3103
- **RID**: UN 3103
- **IMDG**: UN 3103
- **IATA**: UN 3103

14.2 UN proper shipping name

- **ADN**: ORGANIC PEROXIDE TYPE C, LIQUID (tert-BUTYL PEROXYBENZOATE, CUMYL HYDROPEROXIDE)
- **ADR**: ORGANIC PEROXIDE TYPE C, LIQUID (tert-BUTYL PEROXYBENZOATE, CUMYL HYDROPEROXIDE)
- **RID**: ORGANIC PEROXIDE TYPE C, LIQUID (tert-BUTYL PEROXYBENZOATE, CUMYL HYDROPEROXIDE)
- **IMDG**: ORGANIC PEROXIDE TYPE C, LIQUID (tert-BUTYL PEROXYBENZOATE, CUMYL HYDROPEROXIDE)
- **IATA**: Organic peroxide type C, liquid (tert-Butyl peroxybenzoate, Cumyl hydroperoxide)

14.3 Transport hazard class(es)

- **ADN**: 5.2
- **ADR**: 5.2
- **RID**: 5.2
- **IMDG**: 5.2
### 14.4 Packing group

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<td>IATA</td>
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<td>Packing instruction (passenger aircraft): 570</td>
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<td>Labels: Organic Peroxides, Keep Away From Heat</td>
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### 14.5 Environmental hazards

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<td>IMDG</td>
<td>Marine pollutant: yes</td>
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### 14.6 Special precautions for user

Not applicable

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals: Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59): Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer: Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants: Not applicable


| P6b | SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES |
| Quantity 1 | 50 t |
| Quantity 2 | 200 t |

| E1 | ENVIRONMENTAL HAZARDS |
| Quantity | 100 t |
| Quantity | 200 t |

Water contaminating class (Germany): WGK 3 highly water endangering

TA Luft List (Germany): Total dust:
- Not applicable
- Inorganic substances in powdered form: Not applicable
- Inorganic substances in vapour or gaseous form: Not applicable
- Organic Substances: Not applicable
- Carcinogenic substances: Not applicable
- Mutagenic: Not applicable
- Toxic to reproduction: Not applicable

Other regulations: Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

The components of this product are reported in the following inventories:

CH INV (CH): On the inventory, or in compliance with the inventory
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

NOROX PBC-21

Version: 1.0
Revision Date: 19.08.2016
MSDS Number: 600000000346
Print Date: 22.08.2016

TSCA (US) : On TSCA Inventory
DSL (CA) : All components of this product are on the Canadian DSL
AiCS (AU) : On the inventory, or in compliance with the inventory
NZIoC (NZ) : On the inventory, or in compliance with the inventory
ENCS (JP) : On the inventory, or in compliance with the inventory
ISHL (JP) : On the inventory, or in compliance with the inventory
KECI (KR) : On the inventory, or in compliance with the inventory
PICCS (PH) : On the inventory, or in compliance with the inventory
IECSC (CN) : On the inventory, or in compliance with the inventory

15.2 Chemical Safety Assessment
This information is not available.

SECTION 16: Other information
Full text of H-Statements

H226 : Flammable liquid and vapour.
H242 : Heating may cause a fire.
H302 : Harmful if swallowed.
H304 : May be fatal if swallowed and enters airways.
H312 : Harmful in contact with skin.
H314 : Causes severe skin burns and eye damage.
H315 : Causes skin irritation.
H317 : May cause an allergic skin reaction.
H318 : Causes serious eye damage.
H319 : Causes serious eye irritation.
H331 : Toxic if inhaled.
H332 : Harmful if inhaled.
H335 : May cause respiratory irritation.
H373 : May cause damage to organs through prolonged or repeated exposure.
H400 : Very toxic to aquatic life.
H411 : Toxic to aquatic life with long lasting effects.
H412 : Harmful to aquatic life with long lasting effects.

Full text of other abbreviations
Acute Tox. : Acute toxicity
Aquatic Acute : Acute aquatic toxicity
Aquatic Chronic : Chronic aquatic toxicity
Asp. Tox. : Aspiration hazard
Eye Dam. : Serious eye damage
Eye Irrit. : Eye irritation
### NOROX PBC-21

| Flam. Liq. | Flammable liquids |
| Org. Perox. | Organic peroxides |
| Skin Corr. | Skin corrosion |
| Skin Irrit. | Skin irritation |
| Skin Sens. | Skin sensitisation |
| STOT RE | Specific target organ toxicity - repeated exposure |
| STOT SE | Specific target organ toxicity - single exposure |

(Q)SAR - (Quantitative) Structure Activity Relationship; ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; DIN - Standard of the German Institute for Standardisation; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TRGS - Technical Rule for Hazardous Substances; UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative; DSL - Domestic Substances List (Canada); KECI - Korea Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); AIChE - American Institute of Chemical Substances; IECSC - Inventory of Existing Chemical Substances in China; ENCS - Existing and New Chemical Substances (Japan); ISHL - Industrial Safety and Health Law (Japan); PICCS - Philippines Inventory of Chemicals and Chemical Substances; NZIoC - New Zealand Inventory of Chemicals; TCSI - Taiwan Chemical Substance Inventory; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice

### Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

DE / EN
1. Identification

Product identifier: PLEXUS® MA320/3940 Activator
Other means of identification
SKU#: 0639
Recommended use: Not available.
Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information
Manufacturer
Company name: ITW Performance Polymers
Address: 30 Endicott Street, Danvers, MA 01923, United States
Telephone: Customer Service 978-777-1100
Website: www.itwperformancepolymers.com
E-mail: Not available.
Contact person: EHS Department
Emergency phone number:
Chemtrec 800-424-9300
International 703-527-3887

2. Hazard(s) identification

Physical hazards: Not classified.
Health hazards
Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 2A
Sensitization, skin Category 1

Environmental hazards: Not classified.
OSHA defined hazards: Not classified.

Label elements
Signal word: Warning
Hazard statement: Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.

Precautionary statement
Prevention
Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Wear eye protection/face protection. Wear protective gloves.

Response
If on skin: Wash with plenty of water. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.

Storage
Store away from incompatible materials.
Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): None known.
Supplemental information: None.

3. Composition/information on ingredients

Mixtures
### Chemical name and common name and synonyms

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIISODECYL ADIPATE</td>
<td></td>
<td>27178-16-1</td>
<td>20 - 40</td>
</tr>
<tr>
<td>Epoxy Resin:--reaction Product Of Bisphenol A And Epichlorohydrin (refer To Epichlorohydrin)</td>
<td>EPOXY RESIN</td>
<td>25068-38-6</td>
<td>20 - 40</td>
</tr>
<tr>
<td>Dibenzoyl Peroxide</td>
<td></td>
<td>94-36-0</td>
<td>10 - 20</td>
</tr>
<tr>
<td>Benzoate Esters</td>
<td>N/A</td>
<td>2.5 - 10</td>
<td></td>
</tr>
<tr>
<td>Propanol, oxybis-, dibenzoat</td>
<td></td>
<td>27138-31-4</td>
<td>1 - 2.5</td>
</tr>
<tr>
<td>STYRENE BLOCK POLYMER WITH ISOPRENE, HYDROGENATED</td>
<td></td>
<td>68648-89-5</td>
<td>1 - 2.5</td>
</tr>
<tr>
<td>STYRENE-ETHYLENE/BUTYLENE -STYRENE BLOCK COPOLYMER</td>
<td></td>
<td>66070-58-4</td>
<td>1 - 2.5</td>
</tr>
<tr>
<td>Other components below reportable levels</td>
<td></td>
<td></td>
<td>20 - 40</td>
</tr>
</tbody>
</table>

### 4. First-aid measures

**Inhalation**
Move to fresh air. Call a physician if symptoms develop or persist.

**Skin contact**
Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

**Eye contact**
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

**Ingestion**
Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

**Most important symptoms/effects, acute and delayed**
Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

**Indication of immediate medical attention and special treatment needed**
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

### 5. Fire-fighting measures

**Suitable extinguishing media**
Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
Move containers from fire area if you can do so without risk.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
No unusual fire or explosion hazards noted.

### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**
Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

**Environmental precautions**
Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.
7. Handling and storage

Precautions for safe handling
Avoid breathing mist/vapors. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzoyl Peroxide (CAS 94-36-0)</td>
<td>PEL</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzoyl Peroxide (CAS 94-36-0)</td>
<td>TWA</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzoyl Peroxide (CAS 94-36-0)</td>
<td>TWA</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

Biological limit values
No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls
Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment
Eye/face protection
Wear safety glasses with side shields (or goggles). Face shield is recommended.

Skin protection
Hand protection
Wear appropriate chemical resistant gloves.

Other
Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance
Viscous. Liquid.

Physical state
Liquid.

Form
Viscous. Liquid.

Color
White.

Odor
Slight.

Odor threshold
Not available.

pH
6

Melting point/freezing point
217.4 °F (103 °C) estimated

Initial boiling point and boiling range
608 °F (320 °C) estimated

Flash point
265.0 °F (129.4 °C) estimated

Evaporation rate
Not available.
**Flammability (solid, gas)**  
Not applicable.

**Upper/lower flammability or explosive limits**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability limit - upper (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive limit - upper (%)</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Vapor pressure**  
0.00003 hPa estimated

**Vapor density**  
Not available.

**Relative density**  
Not available.

**Solubility(ies)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility (water)</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Partition coefficient**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n-octanol/water)</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Auto-ignition temperature**  
176 °F (80 °C) estimated

**Decomposition temperature**  
Not available.

**Viscosity**  
Not available.

**Other information**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>1.16 g/cm³ estimated</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive.</td>
</tr>
<tr>
<td>Flammability class</td>
<td>Combustible IIIB estimated</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not oxidizing.</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.16 estimated</td>
</tr>
</tbody>
</table>

### 10. Stability and reactivity

**Reactivity**  
The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability**  
Material is stable under normal conditions.

**Possibility of hazardous reactions**  
No dangerous reaction known under conditions of normal use.

**Conditions to avoid**  
Contact with incompatible materials.

**Incompatible materials**  

**Hazardous decomposition products**  
No hazardous decomposition products are known.

### 11. Toxicological information

#### Information on likely routes of exposure

<table>
<thead>
<tr>
<th>Route</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Prolonged inhalation may be harmful.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Causes skin irritation. May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Knowledge about health hazard is incomplete.</td>
</tr>
</tbody>
</table>

**Symptoms related to the physical, chemical and toxicological characteristics**

Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

#### Information on toxicological effects

**Acute toxicity**  
Not known.

**Components**

<table>
<thead>
<tr>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzyol Peroxide (CAS 94-36-0)</td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>7710 mg/kg</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**  
Causes skin irritation.
Serious eye damage/eye irritation
Causes serious eye irritation.

Respiratory or skin sensitization
Respiratory sensitization
Due to partial or complete lack of data the classification is not possible.
May cause an allergic skin reaction.

Skin sensitization
Due to partial or complete lack of data the classification is not possible.

Germ cell mutagenicity
Due to partial or complete lack of data the classification is not possible.

Carcinogenicity
Due to partial or complete lack of data the classification is not possible.

IARC Monographs. Overall Evaluation of Carcinogenicity
Dibenzoyl Peroxide (CAS 94-36-0) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens
Not listed.

Reproductive toxicity
Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - single exposure
Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - repeated exposure
Due to partial or complete lack of data the classification is not possible.

Aspiration hazard
Due to partial or complete lack of data the classification is not possible.

Chronic effects
Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability
No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential
Partition coefficient n-octanol / water (log Kow)
Dibenzoyl Peroxide 3.46

Mobility in soil
No data available.

Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not established.
15. Regulatory information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration
Dibenzoyl Peroxide (CAS 94-36-0) % 1.0

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance
Dibenzoyl Peroxide (CAS 94-36-0) Listed.

Toxic Substances Control Act (TSCA)
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)
SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
Classified hazard categories
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzoyl Peroxide</td>
<td>94-36-0</td>
<td>10 - 20</td>
</tr>
</tbody>
</table>

Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Contains component(s) regulated under the Safe Drinking Water Act.

US state regulations
California Proposition 65

WARNING: This product can expose you to Formaldehyde, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Taiwan Chemical Substance Inventory (TCSI)</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### 16. Other information, including date of preparation or last revision

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue date</td>
<td>05-26-2019</td>
</tr>
<tr>
<td>Revision date</td>
<td>05-03-2020</td>
</tr>
<tr>
<td>Version #</td>
<td>02</td>
</tr>
<tr>
<td>Health:</td>
<td>2</td>
</tr>
<tr>
<td>Flammability:</td>
<td>1</td>
</tr>
<tr>
<td>Physical hazard:</td>
<td>0</td>
</tr>
<tr>
<td>NFPA ratings</td>
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<tr>
<td>Health:</td>
<td>2</td>
</tr>
<tr>
<td>Flammability:</td>
<td>1</td>
</tr>
<tr>
<td>Instability:</td>
<td>0</td>
</tr>
</tbody>
</table>

**Disclaimer**

ITW Performance Polymers cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release.

**Revision information**

This document has undergone significant changes and should be reviewed in its entirety.
1. Identification

Product identifier: PLEXUS® MA320 Adhesive

Other means of identification

SKU#: 0971

Recommended use: Not available.

Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name: ITW Performance Polymers
Address: 30 Endicott Street
Danvers, MA 01923
United States

Telephone: Customer Service 978-777-1100
Website: www.itwperformancepolymers.com
E-mail: Not available.
Contact person: EHS Department

Emergency phone number

Chemtrec 800-424-9300
International 703-527-3887

2. Hazard(s) identification

Physical hazards

- Flammable liquids Category 2

Health hazards

- Acute toxicity, inhalation Category 4
- Skin corrosion/irritation Category 2
- Serious eye damage/eye irritation Category 2A
- Sensitization, skin Category 1A
- Specific target organ toxicity, single exposure Category 3 respiratory tract irritation

Environmental hazards

Not classified.

OSHA defined hazards

Not classified.

Label elements

Signal word: Danger


Precautionary statement

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/eye protection/face protection.

Response

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish.

Storage

Keep cool. Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)
Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.

Supplemental information
None.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl Methacrylate</td>
<td></td>
<td>80-62-6</td>
<td>60 - 80</td>
</tr>
<tr>
<td>Styrene/butadiene Copolymer</td>
<td></td>
<td>9003-55-8</td>
<td>10 - 20</td>
</tr>
<tr>
<td>METHACRYLIC ACID</td>
<td></td>
<td>79-41-4</td>
<td>2.5 - 10</td>
</tr>
<tr>
<td>Other components below reportable levels</td>
<td></td>
<td></td>
<td>10 - 20</td>
</tr>
</tbody>
</table>

4. First-aid measures

**Inhalation**
Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a poison center or doctor/physician if you feel unwell.

**Skin contact**
Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

**Eye contact**
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

**Ingestion**
Rinse mouth. Get medical attention if symptoms occur.

**Most important symptoms/effects, acute and delayed**
Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

**Indication of immediate medical attention and special treatment needed**
Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

**General information**
Take off all contaminated clothing immediately. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

**Suitable extinguishing media**
Water fog. Foam. Carbon dioxide (CO2). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. Material will float and may ignite on surface of water. During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
Highly flammable liquid and vapor.
6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

**Environmental precautions**

Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination.

7. Handling and storage

**Precautions for safe handling**

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist/vapors. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code".

**Conditions for safe storage, including any incompatibilities**

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

**Occupational exposure limits**

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl Methacrylate (CAS 80-62-6)</td>
<td>PEL</td>
<td>410 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100 ppm</td>
</tr>
</tbody>
</table>

Material name: PLEXUS® MA320 Adhesive

0971  Version #: 02  Revision date: 05-03-2020  Issue date: 05-26-2019
### US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHACRYLIC ACID (CAS 79-41-4)</td>
<td>TWA</td>
<td>20 ppm</td>
</tr>
<tr>
<td>Methyl Methacrylate (CAS 80-62-6)</td>
<td>STEL</td>
<td>100 ppm</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>50 ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHACRYLIC ACID (CAS 79-41-4)</td>
<td>TWA</td>
<td>70 mg/m3</td>
</tr>
<tr>
<td>Methyl Methacrylate (CAS 80-62-6)</td>
<td>TWA</td>
<td>410 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100 ppm</td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).

### Exposure guidelines

#### US - California OELs: Skin designation

METHACRYLIC ACID (CAS 79-41-4) Can be absorbed through the skin.

#### US - Tennessee OELs: Skin designation

METHACRYLIC ACID (CAS 79-41-4) Can be absorbed through the skin.

#### US NIOSH Pocket Guide to Chemical Hazards: Skin designation

METHACRYLIC ACID (CAS 79-41-4) Can be absorbed through the skin.

### Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

### Individual protection measures, such as personal protective equipment

- **Eye/face protection**: Chemical respirator with organic vapor cartridge and full facepiece.
- **Skin protection**
  - **Hand protection**: Wear appropriate chemical resistant gloves.
  - **Other**: Wear appropriate chemical resistant clothing.
- **Respiratory protection**: Chemical respirator with organic vapor cartridge and full facepiece.
- **Thermal hazards**: Wear appropriate thermal protective clothing, when necessary.

### General hygiene considerations

When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

### 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Paste</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Form</td>
<td>Paste</td>
</tr>
<tr>
<td>Color</td>
<td>Off-white</td>
</tr>
<tr>
<td>Odor</td>
<td>Fragrant</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>-54.4 °F (-48 °C) estimated</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>212.9 °F (100.5 °C) estimated</td>
</tr>
<tr>
<td>Flash point</td>
<td>50.0 °F (10.0 °C) estimated</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
Upper/lower flammability or explosive limits

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability limit - lower (%)</td>
<td>1.7 %</td>
</tr>
<tr>
<td>Flammability limit - upper (%)</td>
<td>12.5 %</td>
</tr>
<tr>
<td>Explosive limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive limit - upper (%)</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Vapor pressure

Vapor pressure: 51.33 hPa estimated

Vapor density

Relative density

Solubility

<table>
<thead>
<tr>
<th>Solubility (water)</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility (water)</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Partition coefficient (n-octanol/water)

Auto-ignition temperature

Decomposition temperature

Viscosity

Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>0.95 g/cm³ estimated</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive.</td>
</tr>
<tr>
<td>Flammability class</td>
<td>Flammable IB estimated</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not oxidizing.</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>0.95 estimated</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

Reactivity

Chemical stability

Possibility of hazardous reactions

Conditions to avoid

Incompatible materials

Hazardous decomposition products

11. Toxicological information

Information on likely routes of exposure

Inhalation

Skin contact

Eye contact

Ingestion

Symptoms related to the physical, chemical and toxicological characteristics

Information on toxicological effects

Acute toxicity

Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHACRYLIC ACID (CAS 79-41-4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
<td>500 mg/kg</td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Rat</td>
<td>7.1 mg/l, 4 Hours</td>
</tr>
</tbody>
</table>

Material name: PLEXUS® MA320 Adhesive

0971    Version #: 02    Revision date: 05-03-2020    Issue date: 05-26-2019
## Components

<table>
<thead>
<tr>
<th>Test Results</th>
<th>Species</th>
<th>Oral LD50</th>
<th>1060 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl Methacrylate (CAS 80-62-6)</td>
<td>Rat</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Acute Inhalation**
- LC50: Mouse 18.5 mg/l, 2 Hours

**Oral LD50**
- Rat 7800 mg/kg

**Skin corrosion/irritation**
- Causes skin irritation.

**Serious eye damage/eye irritation**
- Causes serious eye irritation.

### Respiratory or skin sensitization

#### ACGIH sensitization
- METHYL METHACRYLATE (CAS 80-62-6)
  - Dermal sensitization: Due to partial or complete lack of data the classification is not possible.

#### Skin sensitization
- May cause an allergic skin reaction.

#### Germ cell mutagenicity
- Due to partial or complete lack of data the classification is not possible.

### Carcinogenicity

#### IARC Monographs. Overall Evaluation of Carcinogenicity
- Methyl Methacrylate (CAS 80-62-6): 3 Not classifiable as to carcinogenicity to humans.
- Styrene/butadiene Copolymer (CAS 9003-55-8): 3 Not classifiable as to carcinogenicity to humans.

#### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
- Not listed.

#### US. National Toxicology Program (NTP) Report on Carcinogens
- Not listed.

### Reproductive toxicity
- Due to partial or complete lack of data the classification is not possible.

#### Specific target organ toxicity - single exposure
- May cause respiratory irritation.

#### Specific target organ toxicity - repeated exposure
- Due to partial or complete lack of data the classification is not possible.

#### Aspiration hazard
- Due to partial or complete lack of data the classification is not possible.

#### Chronic effects
- Prolonged inhalation may be harmful.

---

### 12. Ecological information

#### Ecotoxicity
- The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

#### Persistence and degradability
- No data is available on the degradability of any ingredients in the mixture.

#### Bioaccumulative potential
- Partition coefficient n-octanol / water (log Kow)
  - METHACRYLIC ACID: 0.93
  - Methyl Methacrylate: 1.38

#### Mobility in soil
- No data available.

#### Other adverse effects
- No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

---

### 13. Disposal considerations

#### Disposal instructions
- Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.

#### Local disposal regulations
- Dispose in accordance with all applicable regulations.

#### Hazardous waste code
- D001: Waste Flammable material with a flash point <140 F
- The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Waste from residues / unused products
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Contaminated packaging

---

### 14. Transport information

#### DOT

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN1133</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>Adhesives, containing a flammable liquid, Limited Quantity</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Subsidiary risk</td>
</tr>
<tr>
<td></td>
<td>Label(s) 3</td>
</tr>
<tr>
<td>Packing group</td>
<td>II</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>Read safety instructions, SDS and emergency procedures before handling.</td>
</tr>
<tr>
<td>Special provisions</td>
<td>149, B52, IB2, T4, TP1, TP8</td>
</tr>
<tr>
<td>Packaging exceptions</td>
<td>150</td>
</tr>
<tr>
<td>Packaging non bulk</td>
<td>173</td>
</tr>
<tr>
<td>Packaging bulk</td>
<td>242</td>
</tr>
</tbody>
</table>

#### IATA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN1133</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>Adhesives containing flammable liquid, Limited Quantity</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Subsidiary risk</td>
</tr>
<tr>
<td>Packing group</td>
<td>II</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>No.</td>
</tr>
<tr>
<td>ERG Code</td>
<td>3L</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>Read safety instructions, SDS and emergency procedures before handling.</td>
</tr>
<tr>
<td>Other information</td>
<td>Allowed with restrictions.</td>
</tr>
<tr>
<td>Passenger and cargo aircraft</td>
<td>Allowed with restrictions.</td>
</tr>
<tr>
<td>Cargo aircraft only</td>
<td>Allowed with restrictions.</td>
</tr>
</tbody>
</table>

#### IMDG

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN1133</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>ADHESIVES containing flammable liquid, Limited Quantity</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Subsidiary risk</td>
</tr>
<tr>
<td>Packing group</td>
<td>II</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>No.</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>No.</td>
</tr>
<tr>
<td>EmS</td>
<td>F-E, S-D</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>Read safety instructions, SDS and emergency procedures before handling.</td>
</tr>
<tr>
<td>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</td>
<td>Not established.</td>
</tr>
</tbody>
</table>

DOT; IMDG
15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration**

Methyl Methacrylate (CAS 80-62-6) % 1.0

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance**

Methyl Methacrylate (CAS 80-62-6) Listed.

**Toxic Substances Control Act (TSCA)**

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Methyl Methacrylate (CAS 80-62-6) Listed.

**SARA 304 Emergency release notification**

Not regulated.


Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical**

Yes

**Classified hazard categories**

Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization
Specific target organ toxicity (single or repeated exposure)
Hazard not otherwise classified (HNOC)

**SARA 313 (TRI reporting)**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl Methacrylate</td>
<td>80-62-6</td>
<td>60 - 80</td>
</tr>
</tbody>
</table>

Other federal regulations

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Methyl Methacrylate (CAS 80-62-6)

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Safe Drinking Water Act (SDWA)**

Contains component(s) regulated under the Safe Drinking Water Act.

**FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace**

Methyl Methacrylate (CAS 80-62-6) Low priority

US state regulations

**California Proposition 65**

**WARNING:** This product can expose you to Ethylene Glycol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.
California Proposition 65 - CRT: Listed date/Developmental toxin

Ethylene Glycol (CAS 107-21-1) Listed: June 19, 2015
US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))
Methyl Methacrylate (CAS 80-62-6)

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>No</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>No</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Taiwan Chemical Substance Inventory (TCSI)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A “Yes” indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A “No” indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

<table>
<thead>
<tr>
<th>Issue date</th>
<th>05-26-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision date</td>
<td>05-03-2020</td>
</tr>
<tr>
<td>Version #</td>
<td>02</td>
</tr>
</tbody>
</table>

HMIS® ratings
- Health: 2
- Flammability: 3
- Physical hazard: 0

NFPA ratings
- Health: 2
- Flammability: 3
- Instability: 0

Disclaimer
ITW Performance Polymers cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release.
SAFETY DATA SHEET
NOROX MCP-75 FRED

SECTION 1. IDENTIFICATION

Product name : NOROX MCP-75 FRED

Manufacturer or supplier's details
Company name of supplier : United Initiators, Inc.
Address : 555 Garden Street
           Elyria OH 44035
Telephone : +1-440-323-3112
Telefax : +1-440-323-2659
Emergency telephone : CHEMTREC US (24h): +1-800-424-9300
                     CHEMTREC WORLD (24h): +1-703-527-3887
E-mail address of person responsible for the SDS : cs-initiators.nafta@united-in.com

Recommended use of the chemical and restrictions on use
Recommended use : Hardener

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200
Flammable liquids : Category 4
Organic peroxides : Type D
Acute toxicity (Oral) : Category 4
Acute toxicity (Inhalation) : Category 4
Skin corrosion : Category 1B
Serious eye damage : Category 1
Reproductive toxicity : Category 1B
Specific target organ systemic toxicity - repeated exposure : Category 2
Acute aquatic toxicity : Category 2
Chronic aquatic toxicity : Category 3

GHS label elements
Hazard pictograms:

- Flammable
- Corrosive
- Inert
- Toxic

Signal Word:

Danger

Hazard Statements:

- H227 Combustible liquid.
- H242 Heating may cause a fire.
- H302 + H332 Harmful if swallowed or if inhaled.
- H314 Causes severe skin burns and eye damage.
- H330 May damage fertility or the unborn child.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H401 Toxic to aquatic life.
- H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements:

Prevention:
- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P210 Keep away from heat/sparks/open flames/hot surfaces.
- No smoking.
- P220 Keep/Store away from clothing/strong acids, bases, heavy metal salts and other reducing substances/combustible materials.
- P234 Keep only in original container.
- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:
- P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
- P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
- P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
- P308 + P313 IF exposed or concerned: Get medical advice/attention.
- P363 Wash contaminated clothing before reuse.
- P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.
SAFETY DATA SHEET

NOROX MCP-75 FRED

Version 1.3
Revision Date: 11/06/2017
SDS Number: 600000000088
Print Date: 01/24/2018

Storage:
P405 Store locked up.
P410 Protect from sunlight.
P411 + P235 Store at temperatures not exceeding < 100 °F/< 38 °C. Keep cool.
P420 Store away from other materials.

Disposal:
P501 Dispose of contents/container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture
Chemical nature: Organic Peroxide
Liquid mixture

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl phthalate</td>
<td>131-11-3</td>
<td>&gt;= 30 - &lt; 35</td>
</tr>
<tr>
<td>2-Butanone, peroxide</td>
<td>1338-23-4</td>
<td>&gt;= 25 - &lt; 30</td>
</tr>
<tr>
<td>Cumene hydroperoxide</td>
<td>80-15-9</td>
<td>&gt;= 20 - &lt; 25</td>
</tr>
<tr>
<td>Trimethylpentanediol isobutyrate</td>
<td>6846-50-0</td>
<td>&gt;= 10 - &lt; 15</td>
</tr>
<tr>
<td>Acetophenone</td>
<td>98-86-2</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>Cumene</td>
<td>98-82-8</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>Butanone</td>
<td>78-03-3</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>Benzenemethanol, alpha,alpha-dimethyl-</td>
<td>617-94-7</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General advice: Move out of dangerous area.
Show this material safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
Symptoms of poisoning may appear several hours later.
Call a physician immediately.

If inhaled: Call a physician or poison control center immediately.
If unconscious, place in recovery position and seek medical advice.
Keep respiratory tract clear.
Call a physician immediately.
If breathed in, move person into fresh air.

In case of skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
SAFETY DATA SHEET

NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/06/2017  SDS Number: 600000000088  Print Date: 01/24/2018

Wash contaminated clothing before re-use.
If on skin, rinse well with water.
If on clothes, remove clothes.
If symptoms persist, call a physician.

In case of eye contact
Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed
Keep respiratory tract clear.
Do NOT induce vomiting.
Call a physician immediately.
Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed
Harmful if swallowed or if inhaled.
Causes serious eye damage.
May damage fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.
Causes severe burns.

Protection of first-aiders
First Aid responders should pay attention to self-protection and use the recommended protective clothing.

Notes to physician
Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media
High volume water jet

Specific hazards during fire fighting
Contact with incompatible materials or exposure to temperatures exceeding SADT may result in a self-accelerating decomposition reaction with release of flammable vapors which may auto-ignite.
Flash back possible over considerable distance.
Vapors may form explosive mixtures with air.
Cool closed containers exposed to fire with water spray.

Specific extinguishing methods
Do not use a solid water stream as it may scatter and spread fire.
Remove undamaged containers from fire area if it is safe to do
so.
Use water spray to cool unopened containers.

Further information:
Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Special protective equipment for fire-fighters:
Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

<table>
<thead>
<tr>
<th>Personal precautions, protective equipment and emergency procedures</th>
<th>Use personal protective equipment. Remove all sources of ignition. Follow safe handling advice and personal protective equipment recommendations. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Never return spills in original containers for re-use. Treat recovered material as described in the section &quot;Disposal considerations&quot;.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Environmental precautions</th>
<th>Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Methods and materials for containment and cleaning up</th>
<th>Contact with incompatible substances can cause decomposition at or below SADT. Clear spills immediately. Suppress (knock down) gases/vapors/ mists with a water spray jet. To clean the floor and all objects contaminated by this material, use plenty of water. Soak up with inert absorbent material. Isolate waste and do not reuse. Non-sparking tools should be used. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.</th>
</tr>
</thead>
</table>

**SECTION 7. HANDLING AND STORAGE**

<table>
<thead>
<tr>
<th>Technical measures</th>
<th>See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Advice on protection against</th>
<th>Keep away from heat and sources of ignition. Use only</th>
</tr>
</thead>
</table>
fire and explosion  explosion-proof equipment. Keep away from combustible material.

Advice on safe handling  
Do not swallow.
Do not breathe vapors/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
Avoid formation of aerosol.
Take precautionary measures against static discharges.
Never return any product to the container from which it was originally removed.
Provide sufficient air exchange and/or exhaust in work rooms.
Avoid confinement.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Smoking, eating and drinking should be prohibited in the application area.
Wash thoroughly after handling.
For personal protection see section 8.
Protect from contamination.

Conditions for safe storage  
Avoid impurities (e.g. rust, dust, ash), risk of decomposition.
Electrical installations / working materials must comply with the technological safety standards.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Store in original container.
Keep containers tightly closed in a cool, well-ventilated place.
Store in accordance with the particular national regulations.

Materials to avoid  
Keep away from strong acids, bases, heavy metal salts and other reducing substances.

Recommended storage temperature  
< 100 °F
< 38 °C

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl phthalate</td>
<td>131-11-3</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>OSHA P0</td>
</tr>
<tr>
<td>2-Butanone, peroxide</td>
<td>1338-23-4</td>
<td>C</td>
<td>0.2 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>0.2 ppm</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>1.5 mg/m³</td>
<td>OSHA P0</td>
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<td>C</td>
<td>0.7 ppm</td>
<td>OSHA P0</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>5 mg/m³</td>
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</tr>
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</table>
### SAFETY DATA SHEET

#### NOROX MCP-75 FRED

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Print Date:</th>
</tr>
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<tbody>
<tr>
<td>1.3</td>
<td>11/06/2017</td>
<td>6000000000088</td>
<td>01/24/2018</td>
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</table>

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>TWA</th>
<th>STEL</th>
<th>NIOSH REL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumene hydroperoxide</td>
<td>80-15-9</td>
<td>1 ppm</td>
<td></td>
<td>US WEEL</td>
</tr>
<tr>
<td>Acetophenone</td>
<td>98-86-2</td>
<td>1 ppm</td>
<td></td>
<td>ACGIH</td>
</tr>
<tr>
<td>Cumene</td>
<td>98-82-8</td>
<td>1 ppm</td>
<td></td>
<td>US WEEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 ppm</td>
<td></td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 ppm</td>
<td></td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>245 mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butanone</td>
<td>78-93-3</td>
<td>200 ppm</td>
<td></td>
<td>OSHA P0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>300 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>200 ppm</td>
<td></td>
<td>OSHA P0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>590 mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>245 mg/m3</td>
<td></td>
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</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>1 ppm</td>
<td></td>
<td>OSHA P0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td>1.4 mg/m3</td>
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<td></td>
<td></td>
<td>200 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>590 mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>200 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>590 mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.4 mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>200 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>590 mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>1 ppm</td>
<td></td>
<td>US WEEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 ppm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Hazardous components without workplace control parameters

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethylpentanedioisobutyrate</td>
<td>6846-50-0</td>
</tr>
<tr>
<td>Benzenemethanol, alpha, alpha-dimethyl-</td>
<td>617-94-7</td>
</tr>
</tbody>
</table>

#### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butanone</td>
<td>78-93-3</td>
<td>methyl ethyl ketone</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>2 mg/l</td>
<td>ACGIH BEI</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>5-Hydroxy-N-methyl-2-pyrrolidone</td>
<td>Urine</td>
<td>End of shift (As soon as possible after)</td>
<td>100 mg/l</td>
<td>ACGIH BEI</td>
</tr>
</tbody>
</table>

7 / 33
SAFETY DATA SHEET
NOROX MCP-75 FRED

Version 1.3
Revision Date: 11/06/2017
SDS Number: 600000000088
Print Date: 01/24/2018

Engineering measures
Minimize workplace exposure concentrations.

Personal protective equipment
Respiratory protection
In the case of dust or aerosol formation use respirator with an approved filter.
Filter type
ABEK-filter

Hand protection
Material: butyl-rubber
Break through time: >= 480 min
Glove thickness: 0.5 mm

Remarks
Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove. Wash hands before breaks and at the end of workday.

Eye protection
Tightly fitting safety goggles. Please wear suitable protective goggles. Also wear face protection if there is a splash hazard. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection
Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.

Hygiene measures
Keep away from food and drink. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid
Color: red
Odor: slight
pH: No data available
Melting point/range: No data available
SAFETY DATA SHEET
NOROX MCP-75 FRED

Boiling point/boiling range : Decomposition: Decomposes below the boiling point.
Flash point : > 85 °C
Evaporation rate : No data available
Flammability (solid, gas) : Not applicable
Upper explosion limit : No data available
Lower explosion limit : No data available
Vapor pressure : No data available
Relative vapor density : > 1
Density : 1.0 g/cm³
Solubility(ies) Water solubility : soluble
Partition coefficient: n-octanol/water : No data available

Self-Accelerating decomposition temperature (SADT) : 60 °C
SADT—Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction.

Viscosity
Viscosity, dynamic : No data available
Viscosity, kinematic : not determined

Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing. Organic peroxide

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Stable under recommended storage conditions.
Chemical stability : Stable under recommended storage conditions.
Possibility of hazardous reactions : Vapors may form explosive mixture with air.
Conditions to avoid : Protect from contamination. Contact with incompatible substances can cause decomposition at or below SADT. Heat, flames and sparks.
SAFETY DATA SHEET
NOROX MCP-75 FRED

Avoid confinement.

Incompatible materials: Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents

Hazardous decomposition products: Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
Harmful if swallowed or if inhaled.

Product:
Acute oral toxicity: Acute toxicity estimate: 858.13 mg/kg
Method: Calculation method

Acute inhalation toxicity: Acute toxicity estimate: 1.61 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity: Acute toxicity estimate: 3,102 mg/kg
Method: Calculation method

Ingredients:
Dimethyl phthalate:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity: (Rat): > 10.4 mg/l
Exposure time: 6 h
Test atmosphere: vapor
Remarks: No mortality observed at this dose.

Acute dermal toxicity: LD50 (Rabbit): > 12,000 mg/kg

2-Butanone, peroxide:
Acute oral toxicity: Acute toxicity estimate: 500 mg/kg
Method: Expert judgment

Acute inhalation toxicity: Acute toxicity estimate: 1.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgment
Assessment: The component/mixture is moderately toxic after short term inhalation.
Remarks: Based on data from similar materials

Acute dermal toxicity: Acute toxicity estimate: 2,500 mg/kg
Method: Expert judgment
Cumene hydroperoxide:
Acute oral toxicity : LD50 Oral (Rat): 382 mg/kg

Acute inhalation toxicity :
Acute toxicity estimate: 2.01 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Expert judgment
Assessment: The component/mixture is toxic after short term inhalation.

Acute dermal toxicity :
Acute toxicity estimate: 1,100 mg/kg
Method: Expert judgment

Trimethylpentanediol isobutyrate:
Acute oral toxicity :
LD50 (Rat): > 2,000 mg/kg
Method: Expert judgment
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity :
LCLo (Rat): > 5.30 mg/l
Exposure time: 6 h
Test atmosphere: vapor
Method: Expert judgment
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity :
LD50 (Guinea pig): > 18,530 mg/kg
Method: Expert judgment
Assessment: The substance or mixture has no acute dermal toxicity

Acetophenone:
Acute oral toxicity :
Acute toxicity estimate: 500 mg/kg
Method: Expert judgment
Assessment: The component/mixture is moderately toxic after single ingestion.
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Acute dermal toxicity :
LD50 (Rat): 3,300 mg/kg
Method: OECD Test Guideline 402

Cumene:
Acute oral toxicity :
LD50 (Rat): 2,700 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity :
LD50 (Rabbit): > 3,160 mg/kg

Butanone:
Acute oral toxicity :
LD50 (Rat): 2,193 mg/kg
Method: OECD Test Guideline 423
SAFETY DATA SHEET

NOROX MCP-75 FRED

Version 1.3
Revision Date: 11/06/2017
SDS Number: 60000000000088
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Acute dermal toxicity: LD50 (Rabbit): > 5,000 mg/kg
Method: OECD Test Guideline 402

Benzoxomethanol, alpha, alpha-dimethyl-:
Acute oral toxicity: LD50 (Rat): 1,300 mg/kg
Acute dermal toxicity: LD50 (Rabbit): 4,300 mg/kg

Hydrogen peroxide:
Acute oral toxicity: LD50 (Rat, male): 1,026 mg/kg
Method: OECD Test Guideline 401
Acute inhalation toxicity: LC50 (Rat): > 0.17 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The component/mixture is moderately toxic after short term inhalation.
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI
Acute dermal toxicity: LD50 (Rabbit): > 6,500 mg/kg

N-Methyl-2-pyrrolidone:
Acute oral toxicity: LD50 (Rat): 4,150 mg/kg
Method: OECD Test Guideline 401
Acute inhalation toxicity: LC50 (Rat): > 5.1 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Acute dermal toxicity: LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation
Causes severe burns.

Product:
Remarks: Extremely corrosive and destructive to tissue.

Ingredients:

Dimethyl phthalate:
Species: Rabbit
Method: Draize Test
Result: No skin irritation

2-Butanone, peroxide:
Species: Rabbit
Result: Causes burns.
SAFETY DATA SHEET

NOROX MCP-75 FRED

Cumene hydroperoxide:
Species: Rabbit
Result: Causes burns.

Trimethylpentanediol isobutyrate:
Species: Guinea pig
Result: Mild skin irritation

Acetophenone:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Cumene:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Butanone:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Benzenemethanol, alpha,alpha-dimethyl-:
Species: Rabbit
Result: Severe skin irritation

Hydrogen peroxide:
Result: Corrosive after 3 minutes or less of exposure

N-Methyl-2-pyrrolidone:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Irritating to skin.

Serious eye damage/eye irritation
Causes serious eye damage.

Product:
Remarks: May cause irreversible eye damage.

Ingredients:
Dimethyl phthalate:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405
2-Butanone, peroxide:
Result: Irreversible effects on the eye

Cumene hydroperoxide:
Species: Rabbit
Result: Corrosive

Trimethylpentanediol isobutyrate:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

Acetophenone:
Species: Rabbit
Result: Eye irritation
Method: No information available.
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Cumene:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

Butanone:
Species: Rabbit
Result: Eye irritation
Method: OECD Test Guideline 405

Benzenemethanol, alpha,alpha-dimethyl-:
Result: Irritating to eyes.

Hydrogen peroxide:
Result: Irreversible effects on the eye

N-Methyl-2-pyrrolidone:
Species: Rabbit
Result: Eye irritation
Method: OECD Test Guideline 405

Respiratory or skin sensitization
Skin sensitization
Not classified based on available information.
Respiratory sensitization
Not classified based on available information.
Ingredients:

Dimethyl phthalate:
Species: Mouse
Method: OECD Test Guideline 429
Result: Does not cause skin sensitization.

2-Butanone, peroxide:
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitization.
Assessment: Harmful if swallowed, Harmful if inhaled.

Cumene hydroperoxide:
Result: Does not cause skin sensitization.

Trimethylpentanediol isobutyrate:
Species: Guinea pig
Result: Does not cause skin sensitization.

Acetophenone:
Test Type: Draize Test
Routes of exposure: Skin contact
Species: Guinea pig
Result: Does not cause skin sensitization.

Cumene:
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitization.

Butanone:
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitization.

N-Methyl-2-pyrrolidone:
Species: Mouse
Method: OECD Test Guideline 429
Result: Does not cause skin sensitization.
Remarks: Based on data from similar materials

Germ cell mutagenicity
Not classified based on available information.
Ingredients:

**Dimethyl phthalate:**
Genotoxicity in vitro
- Method: OECD Test Guideline 471
  Result: negative
- Method: OECD Test Guideline 473
  Result: negative
- Method: OECD Test Guideline 476
  Result: positive

Genotoxicity in vivo
- Test Type: Chromosomal aberration
  Species: Rat
  Application Route: Intraperitoneal
  Result: negative
- Test Type: Micronucleus test
  Species: Mouse
  Application Route: Intraperitoneal injection
  Result: negative

**2-Butanone, peroxide:**
Genotoxicity in vitro
- Method: OECD Test Guideline 473
  Result: negative
- Method: OECD Test Guideline 471
  Result: negative
- Method: OECD Test Guideline 476
  Result: negative

**Cumene hydroperoxide:**
Genotoxicity in vitro
- Result: positive
  Remarks: In vitro tests have shown mutagenic effects.

Genotoxicity in vivo
- Test Type: Micronucleus test
  Species: Mouse
  Application Route: Skin contact
  Result: negative

**Trimethylpentanediol isobutyrate:**
Genotoxicity in vitro
- Method: OECD Test Guideline 476
  Result: negative
- Test Type: Ames test
  Result: negative
- Method: OECD Test Guideline 473
  Result: negative

**Acetophenone:**
Genotoxicity in vitro: Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vitro: Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vitro: Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo:
Species: Mouse
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative

Cumene:
Genotoxicity in vitro: Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vitro: Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vitro: Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vitro: Method: OECD Test Guideline 482
Result: negative

Test Type: Ames test
Result: positive

Genotoxicity in vivo:
Species: Rat
Application Route: Intraperitoneal
Exposure time: 72 h
Method: OECD Test Guideline 474
Result: Equivocal

Species: Mouse
Application Route: Inhalation (gas)
Exposure time: 14 w
Method: OECD Test Guideline 474
Result: negative

Butanone:
Genotoxicity in vitro: Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vitro: Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vitro: Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vivo:
Species: Mouse
Application Route: Intraperitoneal
SAFETY DATA SHEET
NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/06/2017  SDS Number: 600000000088  Print Date: 01/24/2018

Method: OECD Test Guideline 474
Result: negative

Hydrogen peroxide:
Genotoxicity in vitro: Test Type: Ames test
Result: negative

Genotoxicity in vivo: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Result: negative

Carcinogenicity
Not classified based on available information.

Ingredients:

Dimethyl phthalate:
Species: Rat
Application Route: Skin contact
Method: OECD Test Guideline 451
Result: negative
Remarks: Based on data from similar materials

2-Butanone, peroxide:
Remarks: This information is not available.

Cumene hydroperoxide:
Remarks: This information is not available.

Cumene:
Species: Rat
Application Route: inhalation (gas)
Exposure time: 2 Years
LOEC: 250
Method: OECD Test Guideline 451
Result: negative

Species: Mouse
Application Route: inhalation (gas)
Exposure time: 2 Years
LOEC: 125
Method: OECD Test Guideline 451
Result: negative

Carcinogenicity - Assessment: Carcinogenicity classification not possible from current data.

IARC
Group 2B: Possibly carcinogenic to humans
Cumene 98-82-8
SAFETY DATA SHEET

NOROX MCP-75 FRED

<table>
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<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Print Date:</th>
</tr>
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<td>1.3</td>
<td>11/06/2017</td>
<td>600000000088</td>
<td>01/24/2018</td>
</tr>
</tbody>
</table>

**OSHA**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**NTP**

Reasonably anticipated to be a human carcinogen

**Cumene**

98-82-8

**Reproductive toxicity**

May damage fertility or the unborn child.

**Ingredients:**

**Dimethyl phthalate:**

**Effects on fertility**

Species: Rat  
Application Route: oral (gavage)  
Method: OECD Test Guideline 440  
Result: negative

**Effects on fetal development**

Species: Rat  
Application Route: Ingestion  
General Toxicity Maternal: NOAEL: 840 mg/kg body weight  
Developmental Toxicity: NOAEL: 3,570 mg/kg body weight  
Method: OECD Test Guideline 414

**2-Butanone, peroxide:**

**Effects on fertility**

Species: Rat  
Application Route: oral (gavage)  
General Toxicity Parent: NOAEL: 50 mg/kg body weight  
Method: OECD Test Guideline 421  
Result: negative

**Cumene hydroperoxide:**

**Effects on fertility**

Remarks: No data available

**Effects on fetal development**

Remarks: No data available

**Acetophenone:**

**Effects on fertility**

Species: Rat  
Application Route: Ingestion  
General Toxicity Parent: NOAEL: 225 mg/kg body weight  
General Toxicity F1: NOAEL: 225 mg/kg body weight  
Method: OECD Test Guideline 422  
Result: negative

Species: Rat  
Application Route: Ingestion  
General Toxicity Parent: LOAEL: 750 mg/kg body weight  
General Toxicity F1: LOAEL: 750 mg/kg body weight  
Method: OECD Test Guideline 422

**Effects on fetal development**

Species: Mouse
SAFETY DATA SHEET

NOROX MCP-75 FRED

Version 1.3
Revision Date: 11/06/2017
SDS Number: 600000000088
Print Date: 01/24/2018

Application Route: Ingestion
General Toxicity Maternal: NOAEL: >= 175 mg/kg body weight
Teratogenicity: NOAEL: >= 175 mg/kg body weight
Developmental Toxicity: NOAEL: >= 175 mg/kg body weight
Method: OECD Test Guideline 414
Result: negative

Cumene:
Effects on fetal development: Species: Rabbit
Application Route: Inhalation (vapor)
General Toxicity Maternal: LOAEL: 500
Developmental Toxicity: NOAEL: 2,300
Method: OECD Test Guideline 414

Species: Rat
Application Route: Inhalation (vapor)
General Toxicity Maternal: NOAEL: 100
Developmental Toxicity: NOAEL: > 1,200
Method: OECD Test Guideline 414

Butanone:
Effects on fertility: Species: Rat
Application Route: Oral (drinking water)
General Toxicity Parent: NOAEL: 10,000 mg/l
General Toxicity F1: NOAEL: 10,000 mg/l
Method: OECD Test Guideline 416
Remarks: Based on data from similar materials

Species: Rat
Application Route: Oral (drinking water)
General Toxicity Parent: LOAEL: 20,000 mg/l
Method: OECD Test Guideline 416
Remarks: Based on data from similar materials

Effects on fetal development: Species: Rat
Application Route: Inhalation
General Toxicity Maternal: NOAEC: ca. 1,002 mg/kg body weight
Teratogenicity: NOAEC Parent: ca. 1,002 mg/kg body weight
Method: OECD Test Guideline 414
Result: negative

N-Methyl-2-pyrrolidone:
Reproductive toxicity - Assessment: Clear evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments

STOT - single exposure
Not classified based on available information.
Ingredients:

Cumene:
Assessment: May cause respiratory irritation.

Hydrogen peroxide:
Assessment: May cause respiratory irritation.

N-Methyl-2-pyrrolidone:
Assessment: May cause respiratory irritation.

STOT-repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Ingredients:

Cumene hydroperoxide:
Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Ingredients:

Dimethyl phthalate:
Species: Rat
NOAEL: 770 mg/kg
Application Route: Oral
Exposure time: 16 w
Method: OECD Test Guideline 408

2-Butanone, peroxide:
Species: Rat
NOAEL: 200 mg/kg
Application Route: oral (gavage)
Exposure time: 28 d
Method: OECD Test Guideline 407

Repeated dose toxicity - : Harmful if swallowed., Harmful if inhaled.
Assessment

Cumene hydroperoxide:
Species: Rat
NOAEL: 0.031 mg/l
Application Route: inhalation (dust/mist/fume)
Exposure time: 90 d

Acetophenone:
Species: Rat
NOAEL: 225 mg/kg
LOAEL: 750 mg/kg
Application Route: Ingestion
SAFETY DATA SHEET
NOROX MCP-75 FRED

Version 1.3
Revision Date: 11/06/2017
SDS Number: 600000000088
Print Date: 01/24/2018

Method: OECD Test Guideline 422

Cumene:
Species: Rat
NOAEL: > 536 mg/kg
Application Route: oral (feed)

Species: Rat
NOAEL: 125 mg/kg
Application Route: Inhalation (vapor)
Method: OECD Test Guideline 413

Hydrogen peroxide:
Species: Mouse
Application Route: Ingestion
Exposure time: 90 d
Symptoms: No adverse effects.

N-Methyl-2-pyrrolidone:
Species: Rat
NOAEL: 0.5 mg/l
LOAEL: 1 mg/l
Application Route: inhalation (vapor)
Exposure time: 90 d
Method: OECD Test Guideline 413

Species: Rat
NOAEL: 3,000 mg/kg
LOAEL: 7,500 mg/kg
Application Route: Ingestion
Exposure time: 90 d
Method: OECD Test Guideline 408

Species: Rat
NOAEL: 6,000 mg/kg
LOAEL: 18,000 mg/kg
Application Route: oral (feed)
Exposure time: 28 d
Method: OECD Test Guideline 407

Species: Rabbit
NOAEL: 925 mg/kg
Application Route: Skin contact
Exposure time: 20 d
Method: OECD Test Guideline 410

Aspiration toxicity
Not classified based on available information.
SAFETY DATA SHEET

NOROX MCP-75 FRED

Ingredients:

Dimethyl phthalate:
No aspiration toxicity classification

Cumene:
May be fatal if swallowed and enters airways.

Further Information

Product:
Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

Dimethyl phthalate:
Toxicity to fish:
LC50 (Pimephales promelas (fathead minnow)): 39 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
LC50 (Daphnia magna (Water flea)): > 52 mg/l
Exposure time: 48 h

Toxicity to algae:
EC50 (Desmodesmus subspicatus (green algae)): 260 mg/l
Exposure time: 72 h

Toxicity to fish (Chronic toxicity):
NOEC (Onchorhyncus mykiss (rainbow trout)): 11 mg/l
Exposure time: 102 d
Method: OECD Test Guideline 210

LOEC (Onchorhyncus mykiss (rainbow trout)): 24 mg/l
Exposure time: 102 d
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
NOEC (Daphnia magna (Water flea)): 9.6 mg/l
Exposure time: 21 d

LOEC (Daphnia magna (Water flea)): 23 mg/l
Exposure time: 21 d

Toxicity to microorganisms:
EC50: 4,100 mg/l
Exposure time: 0.5 h
Method: OECD Test Guideline 209

2-Butanone, peroxide:
Toxicity to fish:
LC50 (Poecilia reticulata (guppy)): 44.2 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
SAFETY DATA SHEET
NOROX MCP-75 FRED

Version: 1.3  Revision Date: 11/06/2017  SDS Number: 600000000088  Print Date: 01/24/2018

NOEC (Poecilia reticulata (guppy)): 18 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): 39 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

NOEC (Daphnia magna (Water flea)): 25.7 mg/l
Method: OECD Test Guideline 202

Toxicity to algae:
EC50 (Pseudokirchneriella subcapitata (green algae)): 5.6 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 2.1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms:
EC50 (Bacteria): 48 mg/l
Exposure time: 0.5 h
Method: OECD Test Guideline 209

Cumene hydroperoxide:

Toxicity to fish:
LC50 (Oncorhynchus mykiss (rainbow trout)): 3.9 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): 18 mg/l
Exposure time: 48 h

Toxicity to algae:
EC50 (Desmodesmus subspicatus (green algae)): 1.6 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Trimethylpentanediol isobutyrate:

Toxicity to fish:
NOEC (Lepomis macrochirus (Bluegill sunfish)): >= 6 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

LC50 (Pimephales promelas (fathead minnow)): > 1.55 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): >= 1.46 mg/l
Exposure time: 48 h

Toxicity to algae:
EC50 (Selenastrum capricornutum (green alga)): > 7.49 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates:
LOEC (Daphnia magna (Water flea)): 0.7 mg/l
SAFETY DATA SHEET

NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/08/2017  SDS Number: 60000000088  Print Date: 01/24/2018

aquatic invertebrates (Chronic toxicity)
Exposure time: 21 d

Ecotoxicology Assessment
Chronic aquatic toxicity: Harmful to aquatic life with long lasting effects.

acetophenone:
Toxicity to fish:
LC50 (Pimephales promelas (fathead minnow)): 162 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): 528 mg/l
Exposure time: 48 h

Toxicity to algae:
EC50 (Pseudokirchneriella subcapitata (green algae)): 86.4 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 24.8 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms:
IC50: > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Cumene:
Toxicity to fish:
LC50 (Oncorhynchus mykiss (rainbow trout)): 4.8 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): 2.14 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae:
EC50 (Desmodesmus subspicatus (green algae)): 2.01 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
NOEC (Daphnia magna (Water flea)): 0.35 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

Toxicity to microorganisms:
EC50: > 2,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Ecotoxicology Assessment
Chronic aquatic toxicity: Toxic to aquatic life with long lasting effects.

Butanone:
<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Toxicity to fish</strong></td>
<td>LC50 (\text{Pimephales promelas (fathead minnow)}): 2,933 mg/l</td>
</tr>
<tr>
<td></td>
<td>Exposure time: 96 h</td>
</tr>
<tr>
<td></td>
<td>Method: OECD Test Guideline 203</td>
</tr>
<tr>
<td><strong>Toxicity to daphnia and other aquatic invertebrates</strong></td>
<td>EC50 (\text{Daphnia magna (Water flea)}): 308 mg/l</td>
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<tr>
<td></td>
<td>Exposure time: 48 h</td>
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<tr>
<td></td>
<td>Method: OECD Test Guideline 202</td>
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<tr>
<td><strong>Toxicity to algae</strong></td>
<td>EC50 (\text{Pseudokirchneriella subcapitata (green algae)}): 2,029 mg/l</td>
</tr>
<tr>
<td></td>
<td>Exposure time: 98 h</td>
</tr>
<tr>
<td></td>
<td>Method: OECD Test Guideline 201</td>
</tr>
<tr>
<td><strong>Toxicity to microorganisms</strong></td>
<td>NOEC (\text{Pseudomonas putida}): 1,150 mg/l</td>
</tr>
<tr>
<td></td>
<td>Exposure time: 18 h</td>
</tr>
<tr>
<td></td>
<td>Method: DIN 38412 Part 8</td>
</tr>
<tr>
<td><strong>Hydrogen peroxide:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Toxicity to fish</strong></td>
<td>LC50 (\text{Pimephales promelas (fathead minnow)}): 16.4 mg/l</td>
</tr>
<tr>
<td></td>
<td>Exposure time: 96 h</td>
</tr>
<tr>
<td><strong>Toxicity to daphnia and other aquatic invertebrates</strong></td>
<td>LC50 (\text{Daphnia pulex (Water flea)}): 2.4 mg/l</td>
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<tr>
<td></td>
<td>Exposure time: 48 h</td>
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<tr>
<td><strong>Toxicity to algae</strong></td>
<td>EC50 (\text{Skeletonema costatum (marine diatom)}): 1.38 mg/l</td>
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<tr>
<td></td>
<td>Exposure time: 72 h</td>
</tr>
<tr>
<td></td>
<td>NOEC (\text{Skeletonema costatum (marine diatom)}): 0.63 mg/l</td>
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<tr>
<td></td>
<td>Exposure time: 72 h</td>
</tr>
<tr>
<td><strong>Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)</strong></td>
<td>NOEC (\text{Daphnia magna (Water flea)}): 0.63 mg/l</td>
</tr>
<tr>
<td></td>
<td>Exposure time: 21 d</td>
</tr>
<tr>
<td><strong>Toxicity to microorganisms</strong></td>
<td>EC50: Method: OECD Test Guideline 209</td>
</tr>
</tbody>
</table>

**N-Methyl-2-pyrrolidone:**

|                         |                                                                                                           |
| **Toxicity to fish**    | LC50 \(\text{Oncorhynchus mykiss (rainbow trout)}\): > 500 mg/l                                      |
|                         | Exposure time: 96 h                                                                                      |
| **Toxicity to daphnia and other aquatic invertebrates** | EC50 \(\text{Daphnia magna (Water flea)}\): > 1,000 mg/l                                      |
|                         | Exposure time: 24 h                                                                                      |
|                         | Method: DIN 38412                                                                                       |
|                         |                                                                                                           |
|                         | EC50 \(\text{Palaeomonetes vulgaris (Grass shrimp)}\): 1,107 mg/l                                     |
|                         | Exposure time: 96 h                                                                                      |
| **Toxicity to algae**   | EC50 \(\text{Desmodesmus subspicatus (Scenedesmus subspicatus)}\): > 500 mg/l                        |
|                         | Exposure time: 72 h                                                                                      |
|                         | NOEC \(\text{Desmodesmus subspicatus (green algae)}\): 125 mg/l                                       |
|                         | Exposure time: 72 h                                                                                      |
SAFETY DATA SHEET

NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/06/2017  SDS Number: 600000000088  Print Date: 01/24/2018

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC (Daphnia magna (Water flea)): 12.5 mg/l
  Exposure time: 21 d
  Method: OECD Test Guideline 211
- LOEC (Daphnia magna (Water flea)): 25 mg/l
  Exposure time: 21 d
  Method: OECD Test Guideline 211

Toxicity to microorganisms:
- EC50: > 600 mg/l
  Exposure time: 0.5 h
  Method: ISO 8192

Persistence and degradability

Ingredients:

Dimethyl phthalate:
- Biodegradability: Result: Readily biodegradable.
  Method: OECD Test Guideline 301E

2-Butanone, peroxide:
- Biodegradability: Result: Readily biodegradable.
  Method: OECD Test Guideline 301D

Cumene hydroperoxide:
- Biodegradability: Result: Not readily biodegradable.
  Method: OECD Test Guideline 301B

Trimethylpentanediol isobutyrate:
- Biodegradability: Result: rapidly biodegradable
  Method: OECD Test Guideline 301B

Acetophenone:
- Biodegradability: Result: Readily biodegradable.
  Method: OECD Test Guideline 301C

Cumene:
- Biodegradability: Result: Readily biodegradable.

Butanone:
- Biodegradability: Result: Readily biodegradable.
  Method: OECD Test Guideline 301D

Benzenemethanol, alpha,alpha-dimethyl-:
- Biodegradability: Remarks: No data available

Hydrogen peroxide:
- Biodegradability: Result: Readily biodegradable.
N-Methyl-2-pyrrolidone:  
Biodegradability:  
Result: Readily biodegradable.  
Method: OECD Test Guideline 301C

Bioaccumulative potential

Ingredients:

Dimethyl phthalate:  
Bioaccumulation:  
Bioconcentration factor (BCF): 57  
Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water:  
log Pow: 1.54

2-Butanone, peroxide:  
Partition coefficient: n-octanol/water:  
log Pow: < 0.3 (25 °C)

Cumene hydroperoxide:  
Partition coefficient: n-octanol/water:  
log Pow: 1.6

Trimethylpentanediol isobutyrate:  
Partition coefficient: n-octanol/water:  
log Pow: 4.48

acetophenone:  
Bioaccumulation:  
Bioconcentration factor (BCF): 0.48

Partition coefficient: n-octanol/water:  
log Pow: 1.63

Cumene:  
Bioaccumulation:  
Bioconcentration factor (BCF): 94.69  
Remarks: Calculation

Partition coefficient: n-octanol/water:  
log Pow: 3.55 (23 °C)

Butanone:  
Partition coefficient: n-octanol/water:  
log Pow: 0.3 (40 °C)

Benzenemethanol, alpha,alpha-dimethyl-:  
Partition coefficient: n-octanol/water:  
Remarks: No data available

Hydrogen peroxide:
SAFETY DATA SHEET
NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/09/2017  SDS Number: 60000000000088  Print Date: 01/24/2018

Partition coefficient: n-octanol/water
: log Pow: -1.57
Remarks: Calculation

N-Methyl-2-pyrrolidone:
Partition coefficient: n-octanol/water
: log Pow: -0.46 (25 °C)

Mobility in soil
No data available

Other adverse effects

Product:
Ozone-Depletion Potential
: Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App. A + B).

Additional ecological information
: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.
Harmful to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues
: The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Dispose of wastes in an approved waste disposal facility.

Contaminated packaging
: Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.
Dispose of in accordance with local regulations.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number
: UN 3105
Proper shipping name
: ORGANIC PEROXIDE TYPE D, LIQUID
(METHYL ETHYL KETONE PEROXIDE(S), CUMYL HYDROPEROXIDE)

Class
: 5.2
Packing group
: Not assigned by regulation
SAFETY DATA SHEET

NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/06/2017  SDS Number: 600000000088  Print Date: 01/24/2018

Labels: 5.2

IATA-DGR
UN/ID No.: UN 3105
Proper shipping name: Organic peroxide type D, liquid
(Methyl ethyl ketone peroxide(s), Cumyl hydroperoxide)
Class: 5.2
Packing group: Not assigned by regulation
Labels: Organic Peroxides, Keep Away From Heat
Packing instruction (cargo aircraft): 570
Packing instruction (passenger aircraft): 570

IMDG-Code
UN number: UN 3105
Proper shipping name: ORGANIC PEROXIDE TYPE D, LIQUID
(METHYL ETHYL KETONE PEROXIDE(S), CUMYL HYDROPEROXIDE)
Class: 5.2
Packing group: Not assigned by regulation
Labels: 5.2
EmS Code: F-J, S-R
Marine pollutant: no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

49 CFR
UN/ID/NA number: UN 3105
Proper shipping name: Organic peroxide type D, liquid
(Methyl Ethyl Ketone Peroxide, <=28%, Cumyl Hydroperoxide, <=22%)
Class: 5.2
Packing group: Not assigned by regulation
Labels: ORGANIC PEROXIDE
ERG Code: 145
Marine pollutant: no

SECTION 15: REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Butanone, peroxide</td>
<td>1388-23-4</td>
<td>10</td>
<td>38</td>
</tr>
</tbody>
</table>

SARA 304 Extremely Hazardous Substances Reportable Quantity

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>1000</td>
<td>*</td>
</tr>
</tbody>
</table>

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards: Fire Hazard Reactivity Hazard
SAFETY DATA SHEET

NOROX MCP-75 FRED

Version 1.3  Revision Date: 11/06/2017  SDS Number: 600000000088  Print Date: 01/24/2018

Acute Health Hazard
Chronic Health Hazard

SARA 302: The following components are subject to reporting levels established by SARA Title III, Section 302:

Hydrogen peroxide 7722-84-1 1 %

SARA 313: The following components are subject to reporting levels established by SARA Title III, Section 313:

Dimethyl phthalate 131-11-3 30.5 %
Cumene hydroperoxide 80-15-9 22%
Acetophenone 98-86-2 2 %
Cumene 98-82-8 2 %

Clean Air Act
This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

Dimethyl phthalate 131-11-3 30.5 %
Acetophenone 98-86-2 2 %
Cumene 98-82-8 2 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.469):

Cumene hydroperoxide 80-15-9 22 %
Acetophenone 98-86-2 2 %
Cumene 98-82-8 2 %
Butanol 78-93-3 1 %

Clean Water Act
This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

Dimethyl phthalate 131-11-3 30.5 %

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

California Prop. 65

Cumene

WARNING! This product contains a chemical known in the State of California to cause cancer.

98-82-8

N-Methyl-2-pyrrolidone 872-50-4

The ingredients of this product are reported in the following inventories:

DSL (CA): All components of this product are on the Canadian DSL

NZIoC (NZ): On the inventory, or in compliance with the inventory
SAFETY DATA SHEET
NOROX MCP-75 FRED

TSCA (US) : On TSCA Inventory

TSCA list
No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations
AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; IISL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECL - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative
Further Information

NFPA:

Flammability

Health

Aggression

Special hazard.

HMIS® IV:

HEALTH  3

REACTIVITY  2

PHYSICAL HAZARD  2

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. For the first box in the Health rating a "7" indicates no chronic health risks and a "3" indicates chronic hazards exist.

Revision Date : 11/06/2017

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Material Safety Data Sheet

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This material safety data sheet (MSDS) is provided as a courtesy in response to a customer request. This product is not regulated under, and a MSDS is not required for this product by the OSHA Hazard Communication Standard (29 CFR 1910.1200) because, when used as recommended or under ordinary conditions, it should not present a health and safety hazard. However, use or processing of the product not in accordance with the product’s recommendations or not under ordinary conditions may affect the performance of the product and may present potential health and safety hazards.

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION


MANUFACTURER: 3M
DIVISION: Industrial Adhesives and Tapes Division
ADDRESS: 3M Center, St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 07/17/13
Supersedes Date: 03/29/13
Document Group: 28-4903-2

Product Use:
Intended Use: Attachment/Reinforcement
Intended Use: Industrial use

SECTION 2: INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>% by Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foam Carrier</td>
<td>Trade Secret</td>
<td>50 - 99</td>
</tr>
<tr>
<td>Acrylic Adhesive</td>
<td>Trade Secret</td>
<td>1 - 50</td>
</tr>
</tbody>
</table>

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Roll of Tape
Odor, Color, Grade: black or white foam tape on paper or film liner.
General Physical Form: Solid

Immediate health, physical, and environmental hazards: The environmental properties of this product present a low environmental hazard. This product, when used under reasonable conditions and in accordance with the 3M directions for use, should not present a health hazard. However, use or processing of the product in a manner not in accordance with the product’s directions for use may affect the performance of the product and may present potential health and safety hazards.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:
No health effects are expected.

Skin Contact:
No health effects are expected.

Inhalation:
No health effects are expected.

Ingestion:
No health effects are expected.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: No need for first aid is anticipated.
Skin Contact: No need for first aid is anticipated.
Inhalation: No need for first aid is anticipated.
If Swallowed: No need for first aid is anticipated.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoignition temperature</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammable Limits(LEL)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammable Limits(UEL)</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

5.2 EXTINGUISHING MEDIA

Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Not applicable. No unusual fire or explosion hazards are anticipated.
Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Not applicable.

6.2. Environmental precautions
Not applicable.

Clean-up methods
Not applicable.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING
This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions.

7.2 STORAGE
Not applicable.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS
Not applicable.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection
Avoid eye contact.

8.2.2 Skin Protection
Avoid prolonged or repeated skin contact. Gloves not normally required.

8.2.3 Respiratory Protection
Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.

8.2.4 Prevention of Swallowing
Not an expected route of exposure.

8.3 EXPOSURE GUIDELINES
None Established

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
Specific Physical Form: Roll of Tape
Odor, Color, Grade: black or white foam tape on paper or film liner.
General Physical Form: Solid
Autoignition temperature Not Applicable
Flash Point Not Applicable
Flammable Limits(LEL) Not Applicable
Flammable Limits(UEL) Not Applicable
Boiling Point Not Applicable
Density Not Applicable
Vapor Density Not Applicable
Vapor Pressure Not Applicable
Specific Gravity Not Applicable
pH Not Applicable
Melting point Not Applicable
Solubility in Water Nil
Evaporation rate Not Applicable
Volatile Organic Compounds Not Applicable
Kow - Oct/Water partition coef Not Applicable
Percent volatile Not Applicable
VOC Less H2O & Exempt Solvents Not Applicable
Viscosity Not Applicable

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid:
10.1 Conditions to avoid
None known

10.2 Materials to avoid
None known

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

<table>
<thead>
<tr>
<th>Substance</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons</td>
<td>During Combustion</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>During Combustion</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>During Combustion</td>
</tr>
</tbody>
</table>

Hazardous Decomposition: Under recommended usage conditions, hazardous decomposition products are not expected. Hazardous decomposition products may occur as a result of oxidation, heating, or reaction with another material.

SECTION 11: TOXICOLOGICAL INFORMATION
Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not determined. Not applicable.

CHEMICAL FATE INFORMATION

Not determined. Not applicable.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Reclaim if feasible. If product can't be reclaimed, dispose of waste product in a sanitary landfill. Alternatively, incinerate the waste product in an industrial, commercial, or municipal incinerator. Dispose of waste product in a sanitary landfill. As a disposal alternative, incinerate in an industrial or commercial facility.

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14: TRANSPORT INFORMATION

Not regulated per U.S. DOT, IATA or IMO.

These transportation classifications are provided as a customer service. As the shipper YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. 3M transportation classifications are based on product formulation, packaging, 3M policies and 3M understanding of applicable current regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and not the packaging, labeling, or marking requirements. The original 3M package is certified for U.S. ground shipment only. If you are shipping by air or ocean, the package may not meet applicable regulatory requirements.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS
Contact 3M for more information.

311/312 Hazard Categories:
Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - No Delayed Hazard - No

STATE REGULATIONS
Contact 3M for more information.

CHEMICAL INVENTORIES
This product is an article as defined by TSCA regulations, and is exempt from TSCA Inventory listing requirements.
INTERNATIONAL REGULATIONS
Contact 3M for more information.

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification
Health: 0 Flammability: 1 Reactivity: 0 Special Hazards: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

Revision Changes:
Section 2: Ingredient table was modified.

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3M USA MSDSs are available at www.3M.com
1. IDENTIFICATION OF THE SUBSTANCE AND COMPANY

Trade Name: LEXAN* Sheet
Product ID: 9915A BF2015 BFL4000U BPL1000 CFR7431 EM1210 EX3110 EX1332T EX1632T EX9332T EXL1112 EXL1132 EXL1414 EXL1413T EXL1330 EXL1414T EXL1434T EXL1890T EXL4419 EXL6414 EXL5689 EXL8454 EXL9112 EXL9132 EXL9134 EXL9330 EXL9414T FXD104R FXD1413T FXD1414T FXD171R FXD941A FXE1112T FXE121R FXE1414L FXE154

Product Description: Poly (bisphenol-A-carbonate) [CASRN 111211-39-3 or 103598-77-2] Sheet
Product Type: Commercial Product
Recommended use: May be used as received, processed or thermoformed to produce other articles, or as a component of other industrial products.
Company: SABIC Innovative Plastics
One Plastics Avenue
Pittsfield, MA 01201 USA
(413) 448-5400
www.sabic-ip.com

Emergency Telephone Number: 800/447-4545
Emergency Transportation/CHEMTREC (24 HOUR) 800/424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

This product consists primarily of high molecular weight polymers which are not expected to be hazardous.
3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

- Plastic film or sheet
- Can burn in a fire creating dense toxic smoke.
- Molten plastic can cause severe thermal burns.
- Fumes produced during melt processing may cause eye, skin, and respiratory tract irritation. Severe over-exposure may result in nausea, headache, chills, and fever.
- Secondary operations, such as grinding, sanding, or sawing can produce dust which may present an explosion or respiratory hazard.

<table>
<thead>
<tr>
<th>HMIS Rating</th>
<th>Health: 0</th>
<th>Flammability: 1</th>
<th>Reactivity: 0</th>
</tr>
</thead>
</table>

Skin contact: Not likely to cause irritation.
Eye Contact: Resin particles, like other inert materials, are mechanically irritating to eyes.
Inhalation: Inhalation unlikely due to physical form.
Ingestion: Ingestion not likely due to physical form.

Chronic Information

Resin Issues: Processing fumes may cause irritation to the eyes, skin, and respiratory tract. In cases of severe exposure, nausea and headache can also occur. Grease-like processing fume condensates on ventilation ductwork, molds, and other surfaces can cause irritation and injury to skin.

Aggravated Medical Conditions: MEDICAL RESTRICTIONS: There are no known health effects aggravated by exposure to this product. However, certain sensitive individuals and individuals with respiratory impairments may be affected by exposure to components in the processing vapors

4. FIRST AID MEASURES

Inhalation: No specific treatment is necessary since this material is not likely to be hazardous by inhalation. If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.

Skin Contact: Wash with water and soap as a precaution. Get medical attention if irritation develops or persists. For hot product, immediately immerse in or flush affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention.

Eye Contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If eye irritation persists, consult a specialist.

Ingestion: No hazards which require special first aid measures.

Precautions: Processing fumes inhalation may be irritating to the respiratory tract. If symptoms are experienced remove victim from the source of contamination or move victim to fresh air and obtain medical advice.

Product Name: LEXAN MSDS
Page 2 of 7
Revision date: 14-Apr-2016
5. FIRE-FIGHTING MEASURES

Explosive Limits

- upper: Not applicable
- lower: Not applicable

Suitable Extinguishing Media:
Water spray mist or foam.

Extinguishing media which must not be used for safety reasons:
Carbon dioxide and dry chemical are not recommended because their lack of cooling capacity may permit re-ignition.

Hazards from Combustion Products:
Fire will produce dense black smoke containing hazardous combustion products, carbon oxides, hydrocarbon fragments.

Special Protective Equipment for Firefighters:
Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products.

Specific Hazards:
Take precautionary measures against static discharges. Thermal decomposition can lead to release of irritating gases and vapors. Dust formed by operations such as cutting or grinding may form an explosive mixture in air.

6. ACCIDENTAL RELEASE MEASURES

Clean up:
Gather and store in a closed container pending a recyclability or waste disposal evaluation.

Personal Precautions:
See section 8.

Environmental Precautions:
Do not flush into surface water or sanitary sewer system. Should not be released into the environment.

7. HANDLING AND STORAGE

Handling:
Handle in accordance with good industrial hygiene and safety practice. Provide for appropriate exhaust ventilation and dust collection at machinery. Avoid dust formation. Accumulation of waste films, sheets and/or masking may create a slipping hazard.

Storage:
Keep away from heat and sources of ignition.
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures to Reduce Exposure:
Handle in accordance with good industrial hygiene and safety practice. Processing fume condensate may be a fire hazard and toxic; remove periodically from exhaust hoods, ductwork, and other surfaces using appropriate personal protection.

Hand Protection:
Protective gloves

Eye Protection:
Safety glasses

Respiratory Protection:
When using this product at elevated temperatures, implement engineering systems, administrative controls or a respiratory protection program (including a respirator approved for protection from organic vapors, acid gases and particulate matter) if processing fumes are not adequately controlled or operators experience symptoms of overexposure. If dust of powder are produced from secondary operations such as sawing or grinding, use a respirator approved for protection from dust.

Skin and Body Protection:
Long sleeved clothing

Hygiene Measures:
When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid
Appearance: Sheet or film
Color: Various
Odor: None or slight

Melting point/range:
This product does not exhibit a sharp melting point but softens gradually over a wide range of temperatures.

Explosive Limits
upper: Not applicable
lower: Not applicable

10. STABILITY AND REACTIVITY

Stability:
Stable at normal conditions. Hazardous polymerization does not occur.

Conditions to Avoid:
Do not exceed melt temperature recommendations in product literature.

Hazardous Decomposition Products:
Processing fumes evolved at recommended processing conditions may include trace levels of hydrocarbon fragments, phenol, alkylphenols, diarylcarbonates.
11. TOXICOLOGICAL INFORMATION

Acute Toxicity:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50/oral/rat</td>
<td>&gt;5000 mg/kg, estimated</td>
</tr>
<tr>
<td>LD50/dermal/rabbit</td>
<td>&gt;2000 mg/kg, estimated</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Inhalation unlikely due to physical form.</td>
</tr>
<tr>
<td>Eye Contact</td>
<td>Resin particles, like other inert materials, are mechanically irritating to eyes.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Not likely to cause irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Ingestion not likely due to physical form.</td>
</tr>
</tbody>
</table>

Chronic Toxicity: No information available

IARC: Not Listed
OSHA: Not regulated
NTP: Not tested

Remarks: The toxicological data has been taken from products of similar composition

Special Studies: Processing fumes from similar products are not considered toxic. In acute inhalation tests, laboratory rats were exposed to processing fumes at concentrations exaggerating those that would likely occur in workplace situations. No deaths or signs of toxicity, except transient irritancy in some cases, were noted during the 6 hour fume exposure tests. There were no distinct or consistent treatment related tissue or organ changes noted in gross necropsies.

12. ECOLOGICAL INFORMATION

Other information: Ecological damages are not known or expected under normal use.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Recycling is encouraged. Landfill or incinerate in accordance with federal, state and local requirements. Collected processing fume condensates and incinerator ash should be tested to determine waste classification.

US EPA Waste number: None
14. TRANSPORT INFORMATION

Transport Classification: Not regulated as hazardous for shipment, unless noted below, under current transportation guidelines.

DOT

ADR/RID/ADNR

IMDG

ICAO

IATA-DGR

MEXICO

15. REGULATORY INFORMATION

International Inventories:
These film and sheet products are considered articles and thus exempt from inventory listing.

CERCLA/SARA 311/312/313:
This product is a non-hazardous article and therefore not subject to the requirements of Title III of SARA (Emergency Planning and Community Right-To-Know Act).

Canada:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS hazard class:
Non-controlled

California Proposition 65:
This product does not contain components known to the State of California to cause cancer and/or reproductive effects.

RoHS EU Directive 2002/95/EC:
This product complies with RoHS - it does not intentionally contain banned chemicals.
LEXAN® Sheet is a registered trademark of SABIC Innovative Plastics

Prepared by: Product Stewardship & Toxicology

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End of Material Safety Data Sheet