



MATERIAL SAFETY DATA SHEET

in accordance with REACH (1907/2006/EC, as amended by 453/2010/EC)

Product : R3X50S (part B)

Review date : 18/12/2020

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

1.1. Product identifier

R3X50S (part B)

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

Hardener for epoxy resin

1.3. Details of the supplier of the safety data sheet

Company:

3X ENGINEERING
 9 Av. Albert II - 98000 Monaco
 Tel. : +377 92 05 79 81 Fax : +377 92 05 72 71
 (mon. – fri. : 8 a.m. – 5 p.m.)
 E-mail (questions) : 3x@3xeng.com

1.4. Emergency telephone number:

24 hours per day, 7 days per week
 ORFILA: +33 (0) 145 425 959
 EU Emergency Number: 12

2. HAZARDS IDENTIFICATION

SECTION 2: Hazards Identification

2.1 Classification of the substance or mixture

Classification (REGULATION (CE) No 1272/2008)

Acute Tox. 4: Acute toxicity, Category 4, H302+H332

Aquatic Chronic 2: Hazardous to the aquatic environment, long-term hazard, Category 2, H411

Eye Dam. 1: Serious eye damage, Category 1, H318

Skin Irrit. 2: Skin irritation, Category 2, H315

Skin Sens. 1A: Sensitization, skin, Category 1A, H317

2.2 Label Elements according to Regulation CLP (EC) No 1272/2008

Danger Label

:



Signal word

:

Danger

H302+H332: Harmful if swallowed or if inhaled
 H411: Toxic to aquatic life with long lasting effects
 H318: Causes serious eye damage
 H315: Causes skin irritation
 H317: May cause an allergic skin reaction

| | | |
|------------------------|---|---|
| Prevention | : | <p>P264: Wash thoroughly after handling</p> <p>P271: Use only outdoors or in a well-ventilated area</p> <p>P280: Wear protective gloves/protective clothing/eye protection/face protection</p> <p>P302+P352: IF ON SKIN: Wash with plenty of water</p> <p>P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing</p> <p>P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing</p> <p>P310: Immediately call a poison center/doctor</p> <p>P501: Dispose of contents/container in accordance with regulations on hazardous waste or packaging and packaging waste respectively</p> |
| Additional information | : | EUH208: Contains Amines, polyethylenepoly-, tetraethylenepentamine fraction, Amines, polyethylenepoly-, triethylenetetramine fraction, Cycloaliphatic amine, Pine oil. May produce an allergic reaction |
| Contains: | | Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine; 1,3- Cyclohexanedimethanamine; Benzyl alcohol; 2,4,6-tris(dimethylaminomethyl)phenol |

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.2. Mixture

Hazardous Ingredients, in accordance with Annex II of Regulation (EC) No 1907/2006 (point 3), the product contains

| Chemical name | Index | Classification CLP 1272/2008/EC | % |
|---|------------------------------------|--|----------|
| Fatty acids, C18-unsaturated, dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine (*) | CE : 500-191-5 CAS : 68082-29-1 | Aquatic Chronic 2: H411 Eye Dam. 1: H318 Skin Irrit. 2: H315 Skin Sens. 1A: H317 | 10 ≤ 25 |
| | REACH | 01-2119972320-44-XXXX | |
| 1,3-Cyclohexanedimethanamine (*) | CE : 219-941-5 CAS : 100-51-6 | Acute Tox. 4: H302+H312 Aquatic Chronic 3: H412 Skin Corr. 1A: H314 | 2,5 ≤ 10 |
| | REACH | 01-2119543741-41-XXXX | |
| Benzyl Alcohol (*) | CE : 202-859-9 CAS : 2579-20-6 | Acute Tox. 4: H302+H332 Eye Irrit. 2: H319 | 2,5 ≤ 10 |
| | REACH | 01-2119492630-38-XXXX | |
| Pine Oil (*) | CE : n/a CAS : 8002-09-3 | Aquatic Chronic 2: H411 Asp. Tox. 1: H304 Eye Irrit. 2: H319 Flam. Liq. 3: H226 Skin Sens. 1: H317 | 1 ≤ 2,5 |
| | REACH | Non concerné | |
| 2,4,6-tris(dimethylaminoethyl)phenol (*) | CE : 202-013-9 CAS : 90-72-2 | Acute Tox. 4: H302 Eye Irrit. 2: H319 Skin Irrit. 2: H315 | 1 ≤ 2,5 |
| | REACH | 01-2119560597-27-XXXX | |
| Cycloaliphatic Amine (*) | CE : 500-101-4 CAS : 38294-64-3 | Aquatic Chronic 3: H412 Eye Dam. 1: H318 Skin Corr. 1B: H314 Skin Sens. 1: H317 | 1 ≤ 2,5 |
| | REACH | 01-2119965165-33-XXXX | |
| Amines, polyethylenepoly-, triethylenetetramine fraction (*) | CE : 292-588-2 CAS : 90640-67-8 | Acute Tox. 4: H312 Aquatic Chronic 3: H412 Skin Corr. 1B: H314 Skin Sens. 1: H317 | 0 ≤ 1 |
| | REACH | 01-2119487919-13-XXXX | |
| Amines, polyethylenepoly-, tetraethylenetetramine (*) | CE : 292-587-7 CAS : 90640-66-7 | Acute Tox. 4: H302+H312 Aquatic Chronic 2: H411 Skin Corr. 1B: H314 Skin Sens. 1: H317 | 0 ≤ 1 |
| | REACH | 01-2119487290-37-XXXX | |

(*) Substances presenting a health or environmental hazard which meet criteria laid down in Regulation (EU) No. 2015/830

4. FIRST AID MEASURES

The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

4.1 Description of first aid measures

| | |
|---------------|---|
| Inhalation | Remove the person affected from the area of exposure, provide with fresh air and keep at rest. In serious cases such as cardiorespiratory failure, artificial resuscitation techniques will be necessary (mouth to mouth resuscitation, cardiac massage, oxygen supply, etc.) requiring immediate medical assistance. |
| Skin contact: | Remove contaminated clothing and footwear, rinse skin or shower the person affected if appropriate with plenty of cold water and neutral soap. In serious cases see a doctor. If the product causes burns or freezing, clothing should not be removed as this could worsen the injury caused if it is stuck to the skin. If blisters form on the skin, these should never be burst as this will increase the risk of infection. |
| Eye contact: | Rinse eyes thoroughly with lukewarm water for at least 15 minutes. Do not allow the person affected to rub or close their eyes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, in which case this could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the SDS of the product. |
| Ingestion: | Request medical assistance immediately, showing the SDS of this product. Do not induce vomiting, but if it does happen keep the head down to avoid aspiration. In the case of loss of consciousness do not administer anything orally unless supervised by a doctor. Rinse out the mouth and throat, as they may have been affected during ingestion. Keep the person affected at rest. |

4.2. Most important symptoms and effects, both acute and delayed

Acute and delayed effects are indicated in sections 2 and 11.

4.3. Indication of any immediate medical attention and special treatment needed

Non-applicable

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Product is non-flammable under normal conditions of storage, handling and use. In the case of combustion as a result of improper handling, storage or use preferably use polyvalent powder extinguishers (ABC powder), in accordance with the Regulation on fire protection systems. IT IS NOT RECOMMENDED to use tap water as an extinguishing agent.

5.2 Special hazards arising from the substance or mixture

As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

5.3 Advice for Firefighters

Depending on the magnitude of the fire it may be necessary to use full protective clothing and self-contained breathing apparatus (SCBA). Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...) in accordance with Directive 89/654/EC.

Additional Provision : Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Eliminate all sources of ignition. In case of fire, cool the storage containers and tanks for products susceptible to combustion, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Isolate leaks provided that there is no additional risk for the people performing this task. Evacuate the area and keep out those without protection. Personal protection equipment must be used against potential contact with the spilt product (See section 8). Above all prevent the formation of any vapor-air flammable mixtures, through either ventilation or the use of an inert medium. Destroy any source of ignition. Eliminate electrostatic charges by interconnecting all the conductive surfaces on which static electricity could form, and also ensuring that all surfaces are connected to the ground.

6.2 Environmental precautions

Avoid at all cost any type of spillage into an aqueous medium. Contain the product absorbed appropriately in hermetically sealed containers. Notify the relevant authority in case of exposure to the general public or the environment.

6.3 Methods and material for containment and cleaning up

Absorb the spillage using sand or inert absorbent and move it to a safe place. Do not absorb in sawdust or other combustible absorbents. For any concern related to disposal consult section 13.

6.4 Reference to other sections

See also section 8 and 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Precautions for safe manipulation

Comply with the current legislation concerning the prevention of industrial risks. Keep containers hermetically sealed. Control spills and residues, destroying them with safe methods (section 6). Avoid leakages from the container. Maintain order and cleanliness where dangerous products are used.

Technical recommendations for the prevention of fires and explosions

Avoid the evaporation of the product as it contains flammable substances, which could form flammable vapor/air mixtures in the presence of sources of ignition. Control sources of ignition (mobile phones, sparks,...) and transfer at slow speeds to avoid the creation of electrostatic charges. Avoid splashes and pulverizations. Consult section 10 for conditions and materials that should be avoided.

Technical recommendations to prevent ergonomic and toxicological risks

Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

Technical recommendations to prevent environmental risks

Due to the danger of this product for the environment it is recommended to use it within an area containing contamination control barriers in case of spillage, as well as having absorbent material in close proximity.

7.2 Conditions for safe storage, including any incompatibilities

Store between 15°C and 32°C. Adequately ventilated premises.

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

7.3 Specific end use(s)

Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Substances whose occupational exposure limits have to be monitored in the workplace

There are no occupational exposure limits for the substances contained in the product

DNEL Workers

| Identification / DNEL Workers | | Short Exposure | | Long Exposure | |
|---|------------|-----------------------|-------|------------------------|-------|
| | | Systemic | Local | Syst | Local |
| Fatty acids, C18-unsaturated, dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine CE : 500-191-5 CAS : 68082-29-1 | Oral | n/a | n/a | n/a | n/a |
| | Dermal | n/a | n/a | 1,1 mg/kg | n/a |
| | Inhalation | n/a | n/a | 3,9 mg/m ³ | n/a |
| 1,3-Cyclohexanedimethanamine EC: 219-941-5 CAS: 2579-20-6 | Oral | n/a | n/a | n/a | n/a |
| | Dermal | 6 mg/kg | n/a | 0,2 mg/kg | n/a |
| | Inhalation | 21 mg/m ³ | n/a | 0,71 mg/m ³ | n/a |
| Benzyl Alcohol EC: 202-859-9 CAS: 100-51-6 | Oral | n/a | n/a | n/a | n/a |
| | Dermal | 47 mg/kg | n/a | 9,5 mg/kg | n/a |
| | Inhalation | 450 mg/m ³ | n/a | 90 mg/m ³ | n/a |
| 2,4,6-tris(dimethylaminomethyl)phenol | Oral | n/a | n/a | n/a | n/a |

| | | | | | |
|--|------------|------------------------|-----|------------------------|-----|
| EC: 202-013-9 CAS: 90-72-2 | Dermal | n/a | n/a | n/a | n/a |
| | Inhalation | n/a | n/a | 0,31 mg/m ³ | n/a |
| Cycloaliphatic amine EC: 500-101-4 CAS: 38294-64-3 | Oral | n/a | n/a | n/a | n/a |
| | Dermal | n/a | n/a | 0,14 mg/kg | n/a |
| | Inhalation | n/a | n/a | 0,98 mg/m ³ | n/a |
| Amines, polyethylenepoly-, triethylenetetramine fraction EC: 292-588-2 CAS: 90640-67-8 | Oral | n/a | n/a | n/a | n/a |
| | Dermal | n/a | n/a | 0,57 mg/kg | n/a |
| | Inhalation | 5380 mg/m ³ | n/a | 1 mg/m ³ | n/a |
| Amines, polyethylenepoly-, tetraethylenepentamine fraction EC: 292-587-7 CAS: 90640-66-7 | Oral | n/a | n/a | n/a | n/a |
| | Dermal | n/a | n/a | 0,74 mg/kg | n/a |
| | Inhalation | 6940 mg/m ³ | n/a | 1,29 mg/m ³ | n/a |

DNEL General Population

| Identification / DNEL General Population | | Short Exposure | | Long Exposure | |
|---|------------|-------------------------|-------|-------------------------|-------|
| | | Systemic | Local | Syst | Local |
| Fatty acids, C18-unsaturated, dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine CE : 500-191-5 CAS : 68082-29-1 | Oral | n/a | n/a | 0,56 mg/kg | n/a |
| | Dermal | n/a | n/a | 0,56 mg/kg | n/a |
| | Inhalation | n/a | n/a | 0,97 mg/m ³ | n/a |
| 1,3-Cyclohexanedimethanamine EC: 219-941-5 CAS: 2579-20-6 | Oral | 3 mg/kg | n/a | 0,1 mg/kg | n/a |
| | Dermal | 3 mg/kg | n/a | 0,1 mg/kg | n/a |
| | Inhalation | 5,2 mg/m ³ | n/a | 0,17 mg/m ³ | n/a |
| Benzyl Alcohol EC: 202-859-9 CAS: 100-51-6 | Oral | 25 mg/kg | n/a | 5 mg/kg | n/a |
| | Dermal | 28,5 mg/kg | n/a | 5,7 mg/kg | n/a |
| | Inhalation | 40,55 mg/m ³ | n/a | 8,11 mg/m ³ | n/a |
| Cycloaliphatic amine EC: 500-101-4 CAS: 38294-64-3 | Oral | n/a | n/a | 0,5 mg/kg | n/a |
| | Dermal | n/a | n/a | 0,5 mg/kg | n/a |
| | Inhalation | n/a | n/a | 0,175 mg/m ³ | n/a |
| Amines, polyethylenepoly-, triethylenetetramine fraction EC: 292-588-2 CAS: 90640-67-8 | Oral | 20 mg/kg | n/a | 0,41 mg/kg | n/a |
| | Dermal | 8 mg/kg | n/a | 0,25 mg/kg | n/a |
| | Inhalation | 1600 mg/m ³ | n/a | 0,29 mg/m ³ | n/a |
| Amines, polyethylenepoly-, tetraethylenepentamine fraction EC: 292-587-7 CAS: 90640-66-7 | Oral | 26 mg/kg | n/a | 0,53 mg/kg | n/a |
| | Dermal | 10 mg/kg | n/a | 0,32 mg/kg | n/a |
| | Inhalation | 2071 mg/m ³ | n/a | 0,38 mg/m ³ | n/a |

PNEC

| Identification / PNEC | | Value | |
|---|--------------|-------------|--------------------------|
| Fatty acids, C18-unsaturated, dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine CE : 500-191-5 CAS : 68082-29-1 | STP | 3,84 mg/l | Fresh water |
| | Sol | 86,78 mg/kg | Marine water |
| | Intermittent | 0,0434 mg/l | Sediments (fresh water) |
| | Oral | n/a | Sediments (marine water) |
| 1,3-Cyclohexanedimethanamine EC: 219-941-5 CAS: 2579-20-6 | STP | 10 mg/l | Fresh water |
| | Sol | n/a | Marine water |
| | Intermittent | 0,311 mg/l | Sediments (fresh water) |
| | Oral | n/a | Sediments (marine water) |
| Benzyl Alcohol EC: 202-859-9 CAS: 100-51-6 | STP | 39 mg/l | Fresh water |
| | Sol | 0,456 mg/kg | Marine water |
| | Intermittent | 2,3 mg/l | Sediments (fresh water) |

| | | | |
|--|--------------|---------------|--------------------------|
| | Oral | n/a | Sediments (marine water) |
| 2,4,6-tris(dimethylaminomethyl)phenol EC: 202-013-9 CAS: 90-72-2 | STP | 0,2 mg/l | Fresh water |
| | Sol | n/a | Marine water |
| | Intermittent | 0,84 mg/l | Sediments (fresh water) |
| | Oral | n/a | Sediments (marine water) |
| Cycloaliphatic amine EC: 500-101-4 CAS: 38294-64-3 | STP | 10 mg/l | Fresh water |
| | Sol | 0,00279 mg/kg | Marine water |
| | Intermittent | 0,111 mg/l | Sediments (fresh water) |
| | Oral | 1g/kg | Sediments (marine water) |
| Amines, polyethylenepoly-, triethylenetetramine fraction EC: 292-588-2 CAS: 90640-67-8 | STP | 4,25 mg/l | Fresh water |
| | Sol | 19,1 mg/kg | Marine water |
| | Intermittent | 0,2 mg/l | Sediments (fresh water) |
| | Oral | 0,18 g/kg | Sediments (marine water) |
| Amines, polyethylenepoly-, tetraethylenepentamine fraction EC: 292-587-7 CAS: 90640-66-7 | STP | 9,73 mg/l | Fresh water |
| | Sol | 0,683 mg/kg | Marine water |
| | Intermittent | 0,068 mg/l | Sediments (fresh water) |
| | Oral | 0,23 g/kg | Sediments (marine water) |

8.2 Exposure controls

Eye and face protection: Use panoramic glasses against splash/projections (EN 166:2001 / EN ISO 4007:2012) label CE Cat II

Hand protection: Use protective gloves against minor risks label CE Cat I

Skin protection: Use work clothing label CE Cat I

Respiratory protection: Use filter mask for gases and vapors (EN 405:2001+A1:2009) label CE Cat III

Environmental exposure controls

In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

With regard to Directive 2010/75/EU, this product has the following characteristics:

| | |
|---------------------------|-------------------------------------|
| V.O.C. (Supply): | 5,2 % weight |
| V.O.C. density at 20 °C: | 83,78 kg/m ³ (83,78 g/L) |
| Average carbon number: | 6,31 |
| Average molecular weight: | 113,71 g/mol |

With regard to Directive 2004/42/EC, this product which is ready to use has the following characteristics:

| | |
|--------------------------------------|----------------------------------|
| V.O.C. density at 20 °C: | 137.26 kg/m ³ (0 g/L) |
| EU limit for the product (Cat. A.J): | 500 g/L (2010) |
| Components: | Non-applicable |

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|--|----------------------------------|
| Aspect | Liquid Viscous |
| Color | Yellowish |
| Odor | Characteristic |
| pH | n/a |
| Melting point/Freezing point | n/a |
| Initial boiling point/boiling range | 176°C |
| Flashpoint | Not inflammable (> 60°C) |
| Evaporation rate | n/a |
| Ignition temperature | n/a |
| Explosion limits (vol%) | n/a |
| Vapor pressure | 2019 Pa (20°C) / 71.16 Pa (60°C) |

| | |
|---|--------------------------------|
| Vapor density | n/a |
| Density | 1.611 g/cm ³ (20°C) |
| Solubility | n/a |
| Partition coefficient: n-octanol / water | n/a |
| Auto-ignition temperature | 325°C |
| Decomposition temperature | n/a |
| Viscosity | >20,5 cSt |
| Explosive properties | n/a |
| Oxidizing properties | n/a |

10. STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions

10.2 Chemical stability

Stable under normal conditions

10.3 Possibility of hazardous reactions

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

10.4 Conditions to avoid

Stable under normal conditions

10.5 Incompatible materials

Avoid strong acids

Avoid alkalis or strong bases

Avoid direct impact

10.6 Hazardous decomposition products

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO₂), carbon monoxide and other organic compounds.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

The experimental information related to the toxicological properties of the product itself is not available

In case of exposure that is repetitive, prolonged or at concentrations higher than the recommended occupational exposure limits, adverse effects on health may result, depending on the means of exposure:

Ingestion (acute effect)

- Acute toxicity : The consumption of a considerable dose can cause irritation in the throat, abdominal pain, nausea and vomiting.

- Corrosivity/Irritability: The consumption of a considerable dose can cause irritation in the throat, abdominal pain, nausea and vomiting.

Inhalation (acute effect)

- Acute toxicity : Exposure in high concentration can interfere with the central nervous system causing headache, dizziness, vertigo, nausea, vomiting, confusion, and in serious cases, loss of consciousness.

- Corrosivity/Irritability: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

Contact with the skin and the eyes (acute effect)

- Contact with the skin: Produces skin inflammation.

- Contact with the eyes: Produces eye damage after contact.

CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction)

- Carcinogenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for the effects mentioned. For more information see section 3. IARC: Quartz (RCS < 1 %)

- Mutagenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

- Reproductive toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

Sensitizing effects

- Respiratory: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous with sensitizing effects. For more information see section 3.
- Cutaneous: Prolonged contact with the skin can result in episodes of allergic contact dermatitis.

Specific target organ toxicity (STOT) - single exposure

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

Specific target organ toxicity (STOT) - repeated exposure

- Specific target organ toxicity (STOT)-repeated exposure: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

Aspiration hazard

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

Specific toxicology on the substances

| Identification / PNEC | | Acute toxicity | Genus |
|--|------------------|---------------------|--------|
| Benzyl Alcohol EC: 202-859-9 CAS: 100-51-6 | LD 50 oral | 500 mg/kg | Rat |
| | LD 50 dermal | 2500 mg/kg (ATEi) | |
| | LC 50 inhalation | 11 mg/l (4h) (ATEi) | |
| 1,3-Cyclohexanedimethanamine EC: 219-941-5 CAS: 2579-20-6 | LD 50 oral | 700 mg/kg | Rat |
| | LD 50 dermal | 1700 mg/kg | Rabbit |
| | LC 50 inhalation | n/a | |
| Pine Oil EC : n/a CAS : 8002-09-3 | LD 50 oral | 3200 mg/kg | Rat |
| | LD 50 dermal | n/a | |
| | LC 50 inhalation | n/a | |
| 2,4,6-tris(dimethylaminomethyl)phenol EC: 202-013-9 CAS: 90-72-2 | LD 50 oral | 1200 mg/kg | Rat |
| | LD 50 dermal | n/a | |
| | LC 50 inhalation | n/a | |
| Amines, polyethylenepoly-, triethylenetetramine fraction EC: 292-588-2 CAS: 90640-67-8 | LD 50 oral | 2505 mg/kg | Rat |
| | LD 50 dermal | 1465 mg/kg | Rabbit |
| | LC 50 inhalation | n/a | |
| Amines, polyethylenepoly-, tetraethylenepentamine fraction EC: 292-587-7 CAS: 90640-66-7 | LD 50 oral | 1861 mg/kg | Rat |
| | LD 50 dermal | 1465 mg/kg | Rabbit |
| | LC 50 inhalation | n/a | |

12. ECOLOGICAL INFORMATION

The experimental information related to the eco-toxicological properties of the product itself is not available

12.1 Toxicity

| Identification | | Acute toxicity | Species | Genus |
|---|------|----------------|---------------------------------|------------|
| Fatty acids, C18-unsaturated, dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine CE : 500-191-5 CAS : 68082-29-1 | LC50 | 7 mg/l (96h) | Danio rerio | Fish |
| | EC50 | 7 mg/l (48h) | Daphnia magna | Crustacean |
| | EC50 | 4 mg/l (96h) | Pseudokirchneriella subcapitata | Algae |
| 1,3-Cyclohexanedimethanamine EC: 219-941-5 | LC50 | 130 mg/l (96h) | Leuciscus idus | Fish |
| | EC50 | 33 mg/l (48h) | Daphnia magna | Crustacean |

| | | | | |
|--|------|--------------------|---------------------------------|------------|
| CAS: 2579-20-6 | EC50 | 30 mg/l (72h) | Pseudokirchneriella subcapitata | Algae |
| Benzyl Alcohol EC: 202-859-9 CAS: 100-51-6 | LC50 | 646 mg/l (48h) | | Fish |
| | EC50 | 400 mg/l (24h) | | Crustacean |
| | EC50 | 79 mg/l (3h) | | Algae |
| Pine Oil EC: Non concerné CAS: 8002-09-3 | LC50 | 1 - 10 mg/l (96 h) | | Fish |
| | EC50 | 1 - 10 mg/l | | Crustacean |
| | EC50 | 1 - 10 mg/l | | Algae |
| 2,4,6-tris(dimethylaminomethyl)phenol EC: 202-013-9 CAS: 90-72-2 | LC50 | 345 mg/l (96h) | QSAR | Fish |
| | EC50 | n/a | | |
| | EC50 | n/a | | |
| Cycloaliphatic amine EC: 500-101-4 CAS: 38294-64-3 | LC50 | 1 - 10 mg/l (96 h) | | Fish |
| | EC50 | 1 - 10 mg/l | | Crustacean |
| | EC50 | 1 - 10 mg/l | | Algae |
| Amines, polyethylenepoly-, triethylenetetramine fraction EC: 292-588-2 CAS: 90640-67-8 | LC50 | 330 mg/l (96h) | Pimephales promelas | Fish |
| | EC50 | 31,1 mg/l (48h) | Daphnia magna | Crustacean |
| | EC50 | 20 mg/l (72h) | Selenastrum capricornutum | Algae |
| Amines, polyethylenepoly-, tetraethylenepentamine fraction EC: 292-587-7 CAS: 90640-66-7 | LC50 | n/a | | |
| | EC50 | n/a | | |
| | EC50 | 6,8 mg/l (72h) | Selenastrum capricornutum | Algae |

12.2 Persistence and degradability

| Identification | Degradability | | Biodegradability | |
|--|---------------|-----|------------------|----------|
| | | | | |
| 1,3-Cyclohexanedimethanamine EC: 219-941-5 CAS: 2579-20-6 | BOD5 | n/a | Concentration | 100 mg/l |
| | COD | n/a | Period | 28 days |
| | BOD5/COD | n/a | % Biodegradable | 29% |
| Benzyl Alcohol EC: 202-859-9 CAS: 100-51-6 | BOD5 | n/a | Concentration | 100 mg/l |
| | COD | n/a | Period | 14 days |
| | BOD5/COD | n/a | % Biodegradable | 94% |
| Amines, polyethylenepoly-, tetraethylenepentamine fraction EC: 292-587-7 CAS: 90640-66-7 | BOD5 | n/a | Concentration | 2 mg/l |
| | COD | n/a | Period | 162 days |
| | BOD5/COD | n/a | % Biodegradable | 0% |

12.3 Bioaccumulative potential

| Identification | Bioaccumulation potential | |
|---|---------------------------|----------|
| | | |
| Fatty acids, C18-unsaturated, dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine CE : 500-191-5 CAS : 68082-29-1 | BCF | 77 |
| | POW Log | |
| | Potentiel | Moderate |
| Benzyl Alcohol EC: 202-859-9 CAS: 100-51-6 | BCF | 0 |
| | POW Log | 1,1 |
| | Potentiel | Bas |
| 2,4,6-tris(dimethylaminomethyl)phenol EC: 202-013-9 CAS: 90-72-2 | BCF | 3 |
| | POW Log | 0,77 |
| | Potentiel | Low |

12.4 Mobility in soil

| Identification | Degradability | Biodegradability |
|----------------|---------------|------------------|
|----------------|---------------|------------------|

| | | | | |
|--|-----------------|-------------------------------|------------|--|
| 1,3-Cyclohexanedimethanamine EC: 219-941-5 CAS: 2579-20-6 | Koc | 30 | Henry | n/a |
| | Conclusion | Very high | Dry soil | n/a |
| | Surface Tension | n/a | Moist Soil | n/a |
| Benzyl Alcohol EC: 202-859-9 CAS: 100-51-6 | Koc | n/a | Henry | n/a |
| | Conclusion | n/a | Dry soil | n/a |
| | Surface Tension | 3,679 ^{E-2} N/m 25°C | Moist Soil | n/a |
| 2,4,6-tris(dimethylaminomethyl)phenol EC: 202-013-9 CAS: 90-72-2 | Koc | 15130 | Henry | 9,312 ^{E-12} Pa.m ³ /mol |
| | Conclusion | Immobile | Dry soil | No |
| | Surface Tension | n/a | Moist Soil | No |
| Amines, polyethylenepoly-, triethylenetetramine fraction EC: 292-588-2 CAS: 90640-67-8 | Koc | 1584 | Henry | n/a |
| | Conclusion | Low | Dry soil | n/a |
| | Surface Tension | n/a | Moist Soil | n/a |
| Amines, polyethylenepoly-, tetraethylenepentamine fraction EC: 292-587-7 CAS: 90640-66-7 | Koc | 1590 | Henry | n/a |
| | Conclusion | Low | Dry soil | n/a |
| | Surface Tension | n/a | Moist Soil | n/a |

12.5 Results of PBT and vPvB

Product fails to meet PTB/vPvB criteria

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Code 08 01 11 : Dangerous : waste paint and varnish containing organic solvents or other hazardous substances

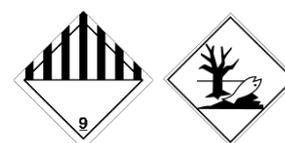
Type of waste : HP14 Ecotoxic, HP4 Irritant — skin irritation and eye damage, HP13 Sensitizing

Consult the authorized waste service manager on the assessment and disposal operations in accordance with Annex 1 and Annex 2 (Directive 2008/98/EC). As under 15 01 (2014/955/EC) of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. We do not recommended disposal down the drain. See paragraph 6.2.

14. TRANSPORT INFORMATION

14.1 UN Number

ADR-UN 3082
IATA-UN 3082
IMDG-UN 3082



14.2 UN Proper shipping name

ADR-Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine)

IATA-Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine)

IMDG-Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine)

14.3 Transport hazard class(es)

ADR Class: 9
IATA Class: 9
IMDG-Class: 9

14.4 Packing group

ADR-Packing Group: III
IATA-Packing group: III
IMDG-Packing group: III

14.5 Environmental hazards

ADR-Pollutant environmental: Yes
IMDG-Marine pollutant: Yes

14.6 Special precautions for user

| | |
|------------------------------|--------------------|
| ADR Subsidiary risks: | - |
| ADR S.P.: | 274, 335, 375, 601 |
| ADR Tunnel restriction code: | - |
| ADR Limited Quantity | 5L |
| IMDG Special regulation | 335, 969, 274 |
| IMDG Limited Quantity | 5L |
| IMDG EmS: | F-A, S-F |
| IMDG Subsidiary risks: | - |
| IMDG Limited Quantity | 5L |
| IMDG Segregation: | - |

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

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

| | |
|---|-----------------|
| Candidate substances for authorization under the Regulation (EC) No 1907/2006 (REACH): | Non-applicable |
| Substances included in Annex XIV of REACH ("Authorization List") and sunset date: | Non-applicable |
| Regulation (EC) No 1005/2009, about substances that deplete the ozone layer: | Non-applicable |
| Article 95, REGULATION (EU) No 528/2012: | Non-applicable |
| REGULATION (EU) No 649/2012, in relation to the import and export of hazardous chemical products: | Non-applicable. |

Directive 2012/18/EU (Seveso III) Section E2 / Lower Tier 200 / Upper Tier 500

Limitation to commercialization and the use of certain dangerous substances and mixtures (Annex XVII REACH)

Shall not be used in:

- > Ornamental articles intended to produce light or color effects by means of different phases, for example in ornamental lamps and ashtrays,
- > Tricks and jokes,
- > Games for one or more participants, or any article intended to be used as such, even with ornamental aspects.

Specific provisions in term of protecting people or the environment

It is recommended to use the information included in this safety data sheet as a basis for conducting workplace-specific risk assessments in order to establish the necessary risk prevention measures for the handling, use, storage and disposal of this product.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for the mixture.

16. OTHER INFORMATION**List of relevant H phrases**

H315: Causes skin irritation
 H318: Causes serious eye damage
 H411: Toxic to aquatic life with long lasting effects
 H317: May cause an allergic skin reaction
 H302+H332: Harmful if swallowed or if inhaled

CLP Regulation (EC) 1272/2008

Acute Tox. 4: H302 - Harmful if swallowed
 Acute Tox. 4: H302+H312 - Harmful if swallowed or in contact with skin
 Acute Tox. 4: H302+H332 - Harmful if swallowed or if inhaled
 Acute Tox. 4: H312 - Harmful in contact with skin
 Aquatic Chronic 2: H411 - Toxic to aquatic life with long lasting effects
 Aquatic Chronic 3: H412 - Harmful to aquatic life with long lasting effects
 Asp. Tox. 1: H304 - May be fatal if swallowed and enters airways
 Eye Dam. 1: H318 - Causes serious eye damage
 Eye Irrit. 2: H319 - Causes serious eye irritation
 Flam. Liq. 3: H226 - Flammable liquid and vapor
 Skin Corr. 1A: H314 - Causes severe skin burns and eye damage
 Skin Corr. 1B: H314 - Causes severe skin burns and eye damage

Skin Irrit. 2: H315 - Causes skin irritation
Skin Sens. 1: H317 - May cause an allergic skin reaction
Skin Sens. 1A: H317 - May cause an allergic skin reaction

Classification procedure

Skin Irrit. 2: Calculation method
Eye Dam. 1: Calculation method
Aquatic Chronic 2: Calculation method
Skin Sens. 1A: Calculation method
Acute Tox. 4: Calculation method

Principal bibliographical sources

<http://echa.europa.eu>
<http://eur-lex.europa.eu>

Abbreviations and acronyms

ADR: European agreement concerning the international carriage of dangerous goods by road
IMDG: International maritime dangerous goods code
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
COD: Chemical Oxygen Demand
BOD5: 5-day biochemical oxygen demand
BCF: Bioconcentration factor
LD50: Lethal Dose 50
LC50: Lethal Concentration 50
EC50: Effective concentration 50
Log-POW: Octanol-water partition coefficient
Koc: Partition coefficient of organic carbon

This edition cancels and replaces any previous edition.

The information herein has been compiled on the basis of our knowledge at the date of publication and therefore cannot be construed as a guarantee of certain properties.

All substances or preparations may present unknown hazards and should be used with caution. Although some hazards are described in this document, we cannot guarantee that there are no other hazards.