# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

**Revision date** 28-Mar-2025 **Revision Number** 1

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

### 1.1. Product identifier

**Safety data sheet number** FG-418A

**Product Name** Part A: EpoxAcast 670 HT

**Other means of identification**

**Unique Formula Identifier (UFI)** 6E30-K09D-400T-HPFP

**Pure substance/mixture** Mixture

Contains Oxirane, 2,2-[1,4-butanediylbis(oxymethylene)]bis-

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

**Recommended use** High Temperature Castable Epoxy

**Uses advised against** No information available

### 1.3. Details of the supplier of the safety data sheet

**Supplier**
Smooth-On, Inc, 5600 Lower Macungie Rd, Macungie, PA 18062, USA, Phone: +01.610.252.5800, www.smooth-on.com, sds@smooth-on.com
For further information, please contact

**E-mail address** sds@smooth-on.com

### 1.4. Emergency telephone number

Emergency Telephone CHEMTEL +01-813-248-0585

| **Emergency Telephone - §45 - (EC)1272/2008** | |
|---|---|
| **Europe** | **112** |
| **Austria** | 01 406 43 43 |
| **Belgium** | 070 245 245 |
| **Bulgaria** | +359 9154 233 |
| **Croatia** | +385 1 2348 342 |
| **Cyprus** | 1401 |
| **Czech Republic** | 224 91 92 93<br>22191 54 02 |
| **Denmark** | +45 8212 1212 |
| **Estonia** | 16662 |
| **Finland** | Maksuton Puhelu: 0800 147 111<br>Normihinta: +358 9 471 977 |
| **France** | +33 01 45 42 59 59 |
| **Germany** | 112 |

| | |
|---|---|
| **Greece** | (0030) 2107793777 |
| **Hungary** | +36 80 201 199 |
| **Iceland** | +354 543 2222 |
| **Ireland** | 01 837 9964<br>01 809 2566 |
| **Italy** | 06 3054 343 |
| **Latvia** | +370 (5) 2362052 |
| **Liechtenstein** | 01 406 43 43 |
| **Lithuania** | +370 5 236 20 52<br>+370 687 533 78 |
| **Luxembourg** | (+352) 8002 5500 |
| **Netherlands** | +31 (0) 88 755 8000 |
| **Norway** | 22 59 13 00 |
| **Poland** | +48 22 619 66 54 |
| **Portugal** | +351 800 250 250 |
| **Romania** | +40 21 599 2300 |
| **Slovakia** | +421 2 5477 4166 |
| **Spain** | +34 91 562 04 20 |
| **Sweden** | 112 |
| **Switzerland** | 145 |
| **United Kingdom** | 0344 892 0111 |

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

| | |
|---|---|
| **Acute toxicity - Oral** | Category 4 - (H302) |
| **Acute toxicity - Dermal** | Category 4 - (H312) |
| **Acute toxicity - Inhalation (Dusts/Mists)** | Category 4 - (H332) |
| **Skin corrosion/irritation** | Category 2 - (H315) |
| **Serious eye damage/eye irritation** | Category 2 - (H319) |
| **Skin sensitization** | Category 1 - (H317) |

### 2.2. Label elements

Contains Oxirane, 2,2-[1,4-butanediylbis(oxymethylene)]bis-

**Signal word**
Warning

**Hazard statements**
H302 - Harmful if swallowed.
H312 - Harmful in contact with skin.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H332 - Harmful if inhaled.

**Precautionary Statements - EU (§28, 1272/2008)**
P261 - Avoid breathing dust, fume, gas, mist, vapors and spray.

P264 - Wash face, hands and any exposed skin thoroughly after handling.
P280 - Wear protective gloves, protective clothing, eye protection and face protection.
P312 - Call a POISON CENTER or doctor if you feel unwell.
P501 - Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable.
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/attention.

**Additional information**
This product requires tactile warnings if supplied to the general public.

**2.3. Other hazards**

No information available.

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors.

## SECTION 3: Composition/information on ingredients

**3.1. Substances**

Not applicable

**3.2. Mixtures**

| Chemical name | Weight-% | REACH registration number | EC No (EU Index No) | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) |
|---|---|---|---|---|---|---|---|
| Limestone<br>1317-65-3 | 15 - 40 | No data available | 215-279-6 | No data available | - | - | - |
| Oxirane, 2,2-[1,4-butanediylbis(oxymethylene)]bis-<br>2425-79-8 | 15 - 40 | No data available | 219-371-7 (603-072-00-7) | Acute Tox. 4 (H312)<br>Acute Tox. 4 (H332)<br>Skin Irrit. 2 (H315)<br>Eye Irrit. 2 (H319)<br>Skin Sens. 1 (H317) | - | - | - |
| Quartz<br>14808-60-7 | 10 - 30 | Below import reportable quantity threshold or otherwise exempt | 238-878-4 | No data available | - | - | - |

If “No data available” is reported in the REACH Registration Number column, then the chemical substance is imported in quantities that are below the REACH registration threshold or are otherwise exempt from registration
"Below import reportable quantity threshold or otherwise exempt”

**Full text of H- and EUH-phrases: see section 16**

*Acute Toxicity Estimate*
If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

| Chemical name | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapor - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|---|---|---|---|---|---|
| Oxirane, 2,2-[1,4-butanediylbis(oxymethylene)]bis- | 1134 | 2150 | No data available | No data available | No data available |

| Chemical name | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapor - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|---|---|---|---|---|---|
| 2425-79-8 | | | | | |

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59)

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**General advice** Show this safety data sheet to the doctor in attendance.

**Inhalation** Remove to fresh air. Get medical attention immediately if symptoms occur. If symptoms persist, call a physician. If breathing has stopped, give artificial respiration. Get medical attention immediately.

**Eye contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.

**Skin contact** May cause an allergic skin reaction. Wash off immediately with soap and plenty of water for at least 15 minutes. If symptoms persist, call a physician.

**Ingestion** Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get medical attention.

**Self-protection of the first aider** Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid breathing vapors or mists. Use personal protective equipment as required. See section 8 for more information.

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

**Symptoms** Itching. Rashes. Hives. May cause redness and tearing of the eyes. Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.

**Effects of Exposure** No information available.

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

**Note to physicians** May cause sensitization in susceptible persons. Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Large Fire** CAUTION: Use of water spray when fighting fire may be inefficient.

**Unsuitable extinguishing media** Do not scatter spilled material with high pressure water streams.

### 5.2. Special hazards arising from the substance or mixture

**Specific hazards arising from the chemical** Product is or contains a sensitizer. May cause sensitization by skin contact.

**5.3. Advice for firefighters**

**Special protective equipment and precautions for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## SECTION 6: Accidental release measures

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

**6.1.1- Recommendations for those who intervene directly**
No information available.

**6.1.2.- Recommendations for those who do not intervene directly**
No information available.

**Personal precautions** Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Avoid breathing vapors or mists.

**Other information** Refer to protective measures listed in Sections 7 and 8.

**For emergency responders** Use personal protection recommended in Section 8.

**6.2. Environmental precautions**

**Environmental precautions** Prevent further leakage or spillage if safe to do so.

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

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Take up mechanically, placing in appropriate containers for disposal.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

**6.4. Reference to other sections**

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling**

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Avoid breathing vapors or mists.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.

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

**Storage Conditions** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach

of children. Store locked up.

**Storage class (TRGS 510)** Storage class 10.

**7.3. Specific end use(s)**

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## SECTION 8: Exposure controls/personal protection

**8.1. Control parameters**

**Exposure Limits**

| Chemical name | European Union | Austria | Belgium | Bulgaria | Croatia |
|---|---|---|---|---|---|
| Limestone<br>1317-65-3 | - | - | TWA: 10 mg/m³ | TWA: 1.0 fiber/cm3<br>TWA: 10 mg/m³ | - |
| Quartz<br>14808-60-7 | TWA: 0.1 mg/m³ | TWA: 0.05 mg/m³ | TWA: 0.1 mg/m³<br>TWA: 0.05 mg/m³ | TWA: 0.1 mg/m³ | TWA: 0.1 mg/m³ |

| Chemical name | Cyprus | Czech Republic | Denmark | Estonia | Finland |
|---|---|---|---|---|---|
| Limestone<br>1317-65-3 | - | TWA: 10.0 mg/m³ | - | TWA: 10 mg/m³<br>TWA: 5 mg/m³ | - |
| Quartz<br>14808-60-7 | TWA: 0.1 mg/m³ | TWA: 0.1 mg/m³ | TWA: 0.3 mg/m³<br>TWA: 0.1 mg/m³<br>STEL: 0.6 mg/m³<br>STEL: 0.2 mg/m³ | TWA: 0.1 mg/m³ | TWA: 0.05 mg/m³ |

| Chemical name | France | Germany TRGS | Germany DFG | Greece | Hungary |
|---|---|---|---|---|---|
| Limestone<br>1317-65-3 | - | - | - | TWA: 10 mg/m³<br>TWA: 5 mg/m³ | TWA: 10 mg/m³ |
| Oxirane,<br>2,2-[1,4-butanediylbis(oxy<br>methylene)]bis-<br>2425-79-8 | - | - | skin sensitizer | - | - |
| Quartz<br>14808-60-7 | TWA: 0.1 mg/m³ | - | - | TWA: 0.1 mg/m³ | TWA: 0.1 mg/m³ |

| Chemical name | Ireland | Italy MDLPS | Italy AIDII | Latvia | Lithuania |
|---|---|---|---|---|---|
| Limestone<br>1317-65-3 | TWA: 10 mg/m³<br>TWA: 4 mg/m³<br>STEL: 30 mg/m³<br>STEL: 12 mg/m³ | - | - | - | - |
| Quartz<br>14808-60-7 | TWA: 0.1 mg/m³<br>STEL: 0.3 mg/m³ | TWA: 0.1 mg/m³ | TWA: 0.025 mg/m³ | TWA: 0.1 mg/m³ | TWA: 0.1 ppm |

| Chemical name | Luxembourg | Malta | Netherlands | Norway | Poland |
|---|---|---|---|---|---|
| Quartz<br>14808-60-7 | - | - | TWA: 0.075 mg/m³ | TWA: 0.05 mg/m³<br>TWA: 0.1 mg/m³<br>TWA: 0.3 mg/m³<br>STEL: 0.9 mg/m³<br>STEL: 0.15 mg/m³<br>STEL: 0.3 mg/m³ | TWA: 0.1 mg/m³ |

| Chemical name | Portugal | Romania | Slovakia | Slovenia | Spain |
|---|---|---|---|---|---|
| Limestone<br>1317-65-3 | - | TWA: 10 mg/m³ | - | - | - |
| Quartz<br>14808-60-7 | TWA: 0.025 mg/m³ | TWA: 0.1 mg/m³ | TWA: 0.1 mg/m³<br>STEL: 0.5 mg/m³ | TWA: 0.05 mg/m³ | TWA: 0.05 mg/m³ |

| Chemical name | Sweden | Switzerland | United Kingdom |
|---|---|---|---|
| Limestone | - | - | TWA: 10 mg/m³ |

| | | | |
|---|---|---|---|
| 1317-65-3 | | | TWA: 4 mg/m³<br>STEL: 30 mg/m³<br>STEL: 12 mg/m³ |
| Quartz<br>14808-60-7 | NGV: 0.1 mg/m³ | TWA: 0.15 mg/m³ | TWA: 0.1 mg/m³<br>STEL: 0.3 mg/m³ |

**Biological occupational exposure limits**

| Chemical name | European Union | Austria | Bulgaria | Croatia | Czech Republic |
|---|---|---|---|---|---|
| Quartz<br>14808-60-7 | - | Check<br>( - ) | - | - | - |

**Derived No Effect Level (DNEL) - Workers**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Oxirane,<br>2,2-[1,4-butanediylbis(oxymethylene)]bis-<br>2425-79-8 | - | 6.66 mg/kg bw/day [4] [6] | 4.7 mg/m³ [4] [6] |

**Notes**
**[4]** Systemic health effects.
**[6]** Long term.

**Derived No Effect Level (DNEL) - General Public**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Oxirane,<br>2,2-[1,4-butanediylbis(oxymethylene)]bis-<br>2425-79-8 | 0.33 mg/kg bw/day [4] [6] | - | 1.16 mg/m³ [4] [6] |

**Notes**
**[4]** Systemic health effects.
**[6]** Long term.

**Predicted No Effect Concentration (PNEC)**

| Chemical name | Freshwater | Freshwater (intermittent release) | Marine water | Marine water (intermittent release) | Air |
|---|---|---|---|---|---|
| Oxirane,<br>2,2-[1,4-butanediylbis(oxymethylene)]bis-<br>2425-79-8 | 0.024 mg/L | 0.24 mg/L | 0.0024 mg/L | - | - |

| Chemical name | Freshwater sediment | Marine sediment | Sewage treatment | Soil | Food chain |
|---|---|---|---|---|---|
| Oxirane,<br>2,2-[1,4-butanediylbis(oxymethylene)]bis-<br>2425-79-8 | 0.084 mg/kg sediment dw | 0.0084 mg/kg sediment dw | 100 mg/L | 0.0027 mg/kg soil dw | 0.028 mg/kg food |

### 8.2. Exposure controls

**Engineering controls** No information available.

**Personal protective equipment**

**Eye/face protection** Wear safety glasses with side shields (or goggles).

**Hand protection** Wear suitable gloves. Impervious gloves.

**Skin and body protection** Wear suitable protective clothing. Long sleeved clothing.

**Respiratory protection** Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.

**Environmental exposure controls** No information available.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

| | |
|---|---|
| **Physical state** | Liquid |
| **Appearance** | Viscous Liquid |
| **Color** | Off-white |
| **Odor** | Mild. |
| **Odor threshold** | No information available |

| Property | Values | Remarks • Method |
|---|---|---|
| **Melting point / freezing point** | No data available | None known |
| **Initial boiling point and boiling range** | No data available | None known |
| **Flammability** | No data available | None known |
| **Flammability Limit in Air** | | None known |
| **Upper flammability or explosive limits** | No data available | |
| **Lower flammability or explosive limits** | No data available | |
| **Flash point** | 148.889 °C / 300 °F | None known |
| **Autoignition temperature** | No data available | None known |
| **Decomposition temperature** | | None known |
| **pH** | No data available | None known |
| **pH (as aqueous solution)** | No data available | None known |
| **Kinematic viscosity** | No data available | None known |
| **Dynamic viscosity** | No data available | None known |
| **Water solubility** | No data available | None known |
| **Solubility(ies)** | No data available | None known |
| **Partition coefficient** | No data available | None known |
| **Vapor pressure** | No data available | None known |
| **Relative density** | 1.2 | None known |
| **Bulk density** | No data available | |
| **Liquid Density** | No data available | |
| **Relative vapor density** | >1 | None known |

**Particle characteristics**

| | |
|---|---|
| **Particle Size** | No information available |
| **Particle Size Distribution** | No information available |

**9.2. Other information**

*9.2.1. Information with regard to physical hazard classes*
Not applicable

*9.2.2. Other safety characteristics*
No information available

## SECTION 10: Stability and reactivity

**10.1. Reactivity**

**Reactivity** No information available.

**10.2. Chemical stability**

**Stability** Stable under normal conditions.

**Explosion data**

| | |
|---|---|
| **Sensitivity to mechanical impact** | None. |
| **Sensitivity to static discharge** | None. |

**10.3. Possibility of hazardous reactions**

**Possibility of hazardous reactions** None under normal processing.

**10.4. Conditions to avoid**

**Conditions to avoid** Excessive heat.

**10.5. Incompatible materials**

**Incompatible materials** Strong acids. Strong bases. Strong oxidizing agents.

**10.6. Hazardous decomposition products**

**Hazardous decomposition products** None known based on information supplied.

## SECTION 11: Toxicological information

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Information on likely routes of exposure**

**Product Information**

| | |
|---|---|
| **Inhalation** | Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. Harmful by inhalation. (based on components). |
| **Eye contact** | Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain. |
| **Skin contact** | May cause sensitization by skin contact. Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components). Causes skin irritation. |

**Ingestion** Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed. (based on components).

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

**Symptoms** Itching. Rashes. Hives. Redness. May cause redness and tearing of the eyes. Coughing and/ or wheezing.

**Acute toxicity** Harmful if swallowed. Harmful by skin contact. Harmful by inhalation.

**Numerical measures of toxicity**

**The following ATE values have been calculated for the mixture**

| | |
|---|---|
| **ATEmix (oral)** | 1,134.00 mg/kg |
| **ATEmix (dermal)** | 1,100.00 mg/kg |
| **ATEmix (inhalation-dust/mist)** | 1.50 mg/l |

**Component Information**

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Oxirane, 2,2-[1,4-butanediylbis(oxymethylene)]bis- | = 1134 mg/kg ( Rat ) | > 2150 mg/kg ( Rat ) | - |

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

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes skin irritation.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye irritation.

**Respiratory or skin sensitization** May cause an allergic skin reaction.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** No information available.

**Reproductive toxicity** No information available.

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

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

**Aspiration hazard** No information available.

**11.2. Information on other hazards**

**11.2.1. Endocrine disrupting properties**

**Endocrine disrupting properties** No information available.

**11.2.2. Other information**

**Other adverse effects** No information available.

## SECTION 12: Ecological information

**12.1. Toxicity**

**Ecotoxicity** The environmental impact of this product has not been fully investigated.

**12.2. Persistence and degradability**

**Persistence and degradability** No information available.

**12.3. Bioaccumulative potential**

**Bioaccumulation**

**Component Information**

| Chemical name | Partition coefficient |
|---|---|
| Oxirane, 2,2-[1,4-butanediylbis(oxymethylene)]bis- | -0.269 |

**12.4. Mobility in soil**

**Mobility in soil** No information available.

**12.5. Results of PBT and vPvB assessment**

**PBT and vPvB assessment** The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

| Chemical name | PBT and vPvB assessment |
|---|---|
| Oxirane, 2,2-[1,4-butanediylbis(oxymethylene)]bis- | Not PBT/vPvB |

**12.6. Endocrine disrupting properties**

**Endocrine disrupting properties** No information available.

**12.7. Other adverse effects**

No information available.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

## SECTION 14: Transport information

**IATA**

| | |
|---|---|
| **14.1 UN number or ID number** | 3082 |
| **14.2 UN proper shipping name** | Environmentally hazardous substance, liquid, n.o.s. (Epoxy Resin) |
| **14.3 Transport hazard class(es)** | 9 |
| **14.4 Packing group** | III |
| **14.5 Environmental hazards** | Marine Pollutant |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |
| **Note:** | This product is not regulated for single or combination packaging having a net quantity of 5L or less. |

**IMDG**

| | |
|---|---|
| **14.1 UN number or ID number** | 3082 |
| **14.2 UN proper shipping name** | This product is not regulated for single or combination packaging having a net quantity of 5L or less.<br><br>Environmentally hazardous substance, liquid, n.o.s. (Epoxy Resin) |
| **14.3 Transport hazard class(es)** | 9 |
| **14.4 Packing group** | III |
| **14.5 Environmental hazards** | Marine Pollutant |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |
| **EmS-No.** | F-A, S-F |
| **14.7 Maritime transport in bulk according to IMO instruments** | No information available |

**RID**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Environmentally hazardous substance, liquid, n.o.s. (Epoxy Resin) |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazards** | Marine Pollutant |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |
| **Note:** | This product is not regulated for single or combination packaging having a net quantity of 5L or less. |

**ADR**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Environmentally hazardous substance, liquid, n.o.s. (Epoxy Resin) |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazards** | Marine Pollutant |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |
| **Note:** | This product is not regulated for single or combination packaging having a net quantity of 5L or less. |

## SECTION 15: Regulatory information

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

**National regulations**

**France**
**Occupational Illnesses (R-463-3, France)**

| Chemical name | French RG number |
|---|---|
| Quartz - 14808-60-7 | RG 25 |

**Germany**

**Water hazard class (WGK)** obviously hazardous to water (WGK 2)

**TA Luft (German Air Pollution Control Regulation)**

| Chemical name | Number | Class |
|---|---|---|
| Quartz | 5.2.7.1.1 | - |

**Netherlands**

**Carcinogenic, mutagenic and reproductive toxic effects**

| Chemical name | Netherlands - List of Carcinogens | Netherlands - List of Mutagens | Netherlands - List of Reproductive Toxins |
|---|---|---|---|
| Quartz | Present | - | - |

**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Authorizations and/or restrictions on use:**

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

| Chemical name | Restricted substance per REACH Annex XVII | Substance subject to authorization per REACH Annex XIV |
|---|---|---|
| Oxirane, 2,2-[1,4-butanediylbis(oxymethylene)]bis- - 2425-79-8 | 75 | - |

**Persistent Organic Pollutants**

Not applicable

**Ozone-depleting substances (ODS) Regulation (EU) 2024/590**

Not applicable

**EU - Plant Protection Products (1107/2009/EC)**

| Chemical name | EU - Plant Protection Products (1107/2009/EC) |
|---|---|
| Quartz - 14808-60-7 | Plant protection agent |

**International Inventories**

| | |
|---|---|
| **TSCA** | Contact supplier for inventory compliance status |
| **DSL/NDSL** | Contact supplier for inventory compliance status |
| **EINECS/ELINCS** | Contact supplier for inventory compliance status |
| **ENCS** | Contact supplier for inventory compliance status |
| **IECSC** | Contact supplier for inventory compliance status |
| **KECL** | Contact supplier for inventory compliance status |
| **PICCS** | Contact supplier for inventory compliance status |
| **AIIC** | Contact supplier for inventory compliance status |
| **NZIoC** | Contact supplier for inventory compliance status |

**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
**AIIC** - Australian Inventory of Industrial Chemicals
**NZIoC** - New Zealand Inventory of Chemicals

**15.2. Chemical safety assessment**

**Chemical Safety Report** No information available

## SECTION 16: Other information

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**Full text of any hazard and/or precautionary statements referred to under Sections 2-15**
H312 - Harmful in contact with skin
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H332 - Harmful if inhaled

**Legend**
SVHC: Substances of Very High Concern for Authorization:
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances
vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances
STOT: Specific Target Organ Toxicity
ATE: Acute Toxicity Estimate
LC50: 50% Lethal Concentration
LD50: 50% Lethal Dose

**Legend Section 8: Exposure controls/personal protection**

| | | | |
|---|---|---|---|
| TWA | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| Ceiling | Maximum limit value | Sk* | Skin designation |
| + | Sensitizers | | |

| Classification procedure | |
|---|---|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used |
| Acute oral toxicity | Calculation method |
| Acute dermal toxicity | Calculation method |
| Acute inhalation toxicity - gas | Calculation method |
| Acute inhalation toxicity - vapor | Calculation method |
| Acute inhalation toxicity - dust/mist | Calculation method |
| Skin corrosion/irritation | Calculation method |
| Serious eye damage/eye irritation | Calculation method |
| Respiratory sensitization | Calculation method |
| Skin sensitization | Calculation method |
| Mutagenicity | Calculation method |
| Carcinogenicity | Calculation method |
| Reproductive toxicity | Calculation method |
| STOT - single exposure | Calculation method |
| STOT - repeated exposure | Calculation method |
| Chronic aquatic toxicity | Calculation method |
| Acute aquatic toxicity | Calculation method |

| | |
|---|---|
| Aspiration hazard | Calculation method |
| Ozone | Calculation method |

**Key literature references and sources for data used to compile the SDS**
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

**Revision date** 28-Mar-2025

**Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)**
**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**

# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

**Revision date** 28-Mar-2025 **Revision Number** 1

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

### 1.1. Product identifier

**Safety data sheet number** FG-916B

**Product Name** PART B: HT Hardener

**Other means of identification**

**Unique Formula Identifier (UFI)** FH30-20YS-F00A-6135

**Pure substance/mixture** Mixture

Contains Cyclohexanamine, 4,4-methylenebis-; Diethyltoluenediamine; Diethylenetriamine; 1-Piperazineethanamine

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

**Recommended use** Epoxy Curative

**Uses advised against** No information available

### 1.3. Details of the supplier of the safety data sheet

**Supplier**
Smooth-On, Inc, 5600 Lower Macungie Rd, Macungie, PA 18062, USA, Phone: +01.610.252.5800, www.smooth-on.com, sds@smooth-on.com
For further information, please contact

**E-mail address** sds@smooth-on.com

### 1.4. Emergency telephone number

Emergency Telephone CHEMTEL +01-813-248-0585

| **Emergency Telephone - §45 - (EC)1272/2008** | |
|---|---|
| **Europe** | **112** |
| **Austria** | 01 406 43 43 |
| **Belgium** | 070 245 245 |
| **Bulgaria** | +359 9154 233 |
| **Croatia** | +385 1 2348 342 |
| **Cyprus** | 1401 |
| **Czech Republic** | 224 91 92 93<br>22191 54 02 |
| **Denmark** | +45 8212 1212 |
| **Estonia** | 16662 |
| **Finland** | Maksuton Puhelu: 0800 147 111<br>Normihinta: +358 9 471 977 |
| **France** | +33 01 45 42 59 59 |
| **Germany** | 112 |

| | |
|---|---|
| **Greece** | (0030) 2107793777 |
| **Hungary** | +36 80 201 199 |
| **Iceland** | +354 543 2222 |
| **Ireland** | 01 837 9964<br>01 809 2566 |
| **Italy** | 06 3054 343 |
| **Latvia** | +370 (5) 2362052 |
| **Liechtenstein** | 01 406 43 43 |
| **Lithuania** | +370 5 236 20 52<br>+370 687 533 78 |
| **Luxembourg** | (+352) 8002 5500 |
| **Netherlands** | +31 (0) 88 755 8000 |
| **Norway** | 22 59 13 00 |
| **Poland** | +48 22 619 66 54 |
| **Portugal** | +351 800 250 250 |
| **Romania** | +40 21 599 2300 |
| **Slovakia** | +421 2 5477 4166 |
| **Spain** | +34 91 562 04 20 |
| **Sweden** | 112 |
| **Switzerland** | 145 |
| **United Kingdom** | 0344 892 0111 |

## SECTION 2: Hazards identification

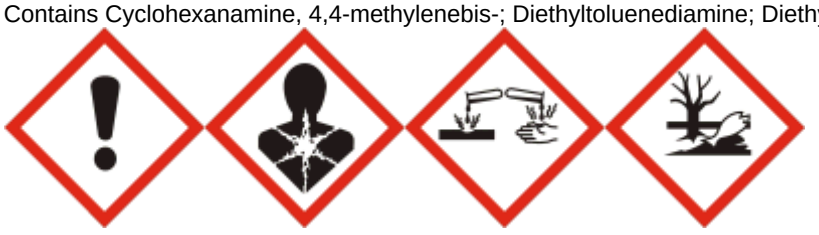
### 2.1. Classification of the substance or mixture

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

| | |
|---|---|
| **Acute toxicity - Oral** | Category 4 - (H302) |
| **Acute toxicity - Dermal** | Category 4 - (H312) |
| **Skin corrosion/irritation** | Category 1 Sub-category B - (H314) |
| **Serious eye damage/eye irritation** | Category 1 - (H318) |
| **Skin sensitization** | Category 1 - (H317) |
| **Specific target organ toxicity (repeated exposure)** | Category 2 - (H373) |
| **Hazardous to the aquatic environment - acute** | Category 1 - (H400) |
| **Hazardous to the aquatic environment - chronic** | Category 1 - (H410) |

### 2.2. Label elements

Contains Cyclohexanamine, 4,4-methylenebis-; Diethyltoluenediamine; Diethylenetriamine; 1-Piperazineethanamine



**Signal word**
Danger

**Hazard statements**
H302 - Harmful if swallowed.
H312 - Harmful in contact with skin.
H314 - Causes severe skin burns and eye damage.
H317 - May cause an allergic skin reaction.
H373 - May cause damage to organs through prolonged or repeated exposure.
H410 - Very toxic to aquatic life with long lasting effects.

**Precautionary Statements - EU (§28, 1272/2008)**
P260 - Do not breathe dust, fume, gas, mist, vapors and spray.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing and eye/face protection.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or 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.
P310 - Immediately call a POISON CENTER or doctor.
P391 - Collect spillage.

**Additional information**
This product requires child resistant fastenings if supplied to the general public. This product requires tactile warnings if supplied to the general public.

**2.3. Other hazards**

No information available.

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors.

## SECTION 3: Composition/information on ingredients

**3.1. Substances**

Not applicable

**3.2. Mixtures**

| Chemical name | Weight-% | REACH registration number | EC No (EU Index No) | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) |
|---|---|---|---|---|---|---|---|
| Diethyltoluenediamine<br>68479-98-1 | 30 - 60 | Below import reportable limit or exempted from registration | 270-877-4 (612-130-00-0) | Acute Tox. 4 (H302)<br>Acute Tox. 4 (H312)<br>Eye Irrit. 2 (H319)<br>STOT RE 2 (H373)<br>Aquatic Acute 1 (H400)<br>Aquatic Chronic 1 (H410) | - | - | - |
| Cyclohexanamine, 4,4-methylenebis-<br>1761-71-3 | 30 - 60 | No data available | 217-168-8 | No data available | - | - | - |
| Diethylenetriamine<br>111-40-0 | 15 - 40 | Below import reportable quantity threshold or otherwise exempt | 203-865-4 (612-058-00-X) | Acute Tox. 4 (H302)<br>Acute Tox. 4 (H312)<br>Skin Corr. 1B (H314)<br>Skin Sens. 1 (H317) | - | - | - |
| 1-Piperazineethanamine<br>140-31-8 | 0.1 - 1 | No data available | 205-411-0 (612-105-00-4) | Acute Tox. 4 (H302)<br>Acute Tox. 4 (H312)<br>Skin Corr. 1B (H314)<br>Skin Sens. 1 (H317)<br>Aquatic Chronic 3 (H412) | - | - | - |

If “No data available” is reported in the REACH Registration Number column, then the chemical substance is imported in quantities that are below the REACH registration threshold or are otherwise exempt from registration
"Below import reportable quantity threshold or otherwise exempt”

**Full text of H- and EUH-phrases: see section 16**

*Acute Toxicity Estimate*
If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

| Chemical name | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapor - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|---|---|---|---|---|---|
| Diethyltoluenediamine 68479-98-1 | 485 | 700 | No data available | No data available | No data available |
| Cyclohexanamine, 4,4-methylenebis- 1761-71-3 | 380 | 2110 | No data available | No data available | No data available |
| Diethylenetriamine 111-40-0 | 1080 | 672 | 70 | No data available | No data available |
| 1-Piperazineethanamine 140-31-8 | 2097.2 | 866 | No data available | No data available | No data available |

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59)

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**General advice** Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Inhalation** Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur.

**Eye contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention.

**Skin contact** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention. May cause an allergic skin reaction.

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

**Self-protection of the first aider** Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8). Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

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

**Symptoms** Burning sensation. Itching. Rashes. Hives.

**Effects of Exposure** May cause damage to organs through prolonged or repeated exposure.

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

**Note to physicians** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. May cause sensitization in susceptible persons. Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Large Fire** CAUTION: Use of water spray when fighting fire may be inefficient.

**Unsuitable extinguishing media** Do not scatter spilled material with high pressure water streams.

### 5.2. Special hazards arising from the substance or mixture

**Specific hazards arising from the chemical** The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. Product is or contains a sensitizer. May cause sensitization by skin contact.

### 5.3. Advice for firefighters

**Special protective equipment and precautions for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## SECTION 6: Accidental release measures

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

**6.1.1- Recommendations for those who intervene directly**
No information available.

**6.1.2.- Recommendations for those who do not intervene directly**
No information available.

**Personal precautions** Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Other information** Refer to protective measures listed in Sections 7 and 8.

**For emergency responders** Use personal protection recommended in Section 8.

### 6.2. Environmental precautions

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

### 6.3. Methods and material for containment and cleaning up

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Take up mechanically, placing in appropriate containers for disposal.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

### 6.4. Reference to other sections

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store locked up. Protect from moisture. Store away from other materials.

**Storage class (TRGS 510)** Storage class 8A.

### 7.3. Specific end use(s)

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

**Exposure Limits**

| Chemical name | European Union | Austria | Belgium | Bulgaria | Croatia |
|---|---|---|---|---|---|
| Diethylenetriamine<br>111-40-0 | - | TWA: 1 ppm<br>TWA: 4 mg/m³<br>Sh+ | TWA: 1 ppm<br>TWA: 4.3 mg/m³<br>Sk* | TWA: 4.0 mg/m³ | TWA: 1 ppm<br>TWA: 4.3 mg/m³<br>Skin Sensitisation |
| Chemical name | Cyprus | Czech Republic | Denmark | Estonia | Finland |
| Diethylenetriamine<br>111-40-0 | - | TWA: 4 mg/m³<br>Ceiling: 8 mg/m³ | TWA: 1 ppm<br>TWA: 4 mg/m³<br>STEL: 2 ppm<br>STEL: 8 mg/m³<br>Sk* | TWA: 1 ppm<br>TWA: 4.5 mg/m³<br>STEL: 2 ppm<br>STEL: 10 mg/m³<br>Sk*<br>S+ | TWA: 1 ppm<br>TWA: 4.3 mg/m³<br>STEL: 3 ppm<br>STEL: 13 mg/m³<br>Sk* |
| Chemical name | France | Germany TRGS | Germany DFG | Greece | Hungary |
| Diethylenetriamine<br>111-40-0 | TWA: 1 ppm<br>TWA: 4 mg/m³<br>AC+ | - | skin sensitizer | TWA: 1 ppm<br>TWA: 4 mg/m³<br>Sk* | TWA: 1 ppm<br>TWA: 4 mg/m³<br>STEL: 2 ppm<br>STEL: 8 mg/m³<br>Sk* |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | sz+ |
| Chemical name | Ireland | Italy MDLPS | Italy AIDII | Latvia | Lithuania |
| Diethylenetriamine<br>111-40-0 | TWA: 1 ppm<br>TWA: 4 mg/m³<br>STEL: 3 ppm<br>STEL: 12 mg/m³<br>Sk* | - | TWA: 1 ppm<br>TWA: 4.2 mg/m³<br>Sk* | - | TWA: 1 ppm<br>TWA: 4.5 mg/m³<br>STEL: 2 ppm<br>STEL: 10 mg/m³<br>Sk*<br>J+ |
| Chemical name | Luxembourg | Malta | Netherlands | Norway | Poland |
| Diethylenetriamine<br>111-40-0 | - | - | - | TWA: 1 ppm<br>TWA: 4 mg/m³<br>STEL: 3 ppm<br>STEL: 8 mg/m³<br>Sk*<br>A+ | TWA: 4 mg/m³<br>STEL: 12 mg/m³<br>Sk* |
| Chemical name | Portugal | Romania | Slovakia | Slovenia | Spain |
| Diethylenetriamine<br>111-40-0 | TWA: 1 ppm<br>Sk* | TWA: 0.5 ppm<br>TWA: 2 mg/m³<br>STEL: 1 ppm<br>STEL: 4 mg/m³<br>Sk* | - | - | TWA: 1 ppm<br>TWA: 4.3 mg/m³<br>Sk*<br>Sen+ |

| Chemical name | Sweden | Switzerland | United Kingdom |
|---|---|---|---|
| Diethylenetriamine<br>111-40-0 | NGV: 1 ppm<br>NGV: 4.5 mg/m³<br>Vägledande KGV: 2 ppm<br>Vägledande KGV: 10 mg/m³<br>Sk*<br>S+ | TWA: 1 ppm<br>TWA: 4 mg/m³<br>Sk* | TWA: 1 ppm<br>TWA: 4.3 mg/m³<br>STEL: 3 ppm<br>STEL: 12.9 mg/m³<br>Sk* |

**Biological occupational exposure limits** This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

**Derived No Effect Level (DNEL) - Workers**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Diethyltoluenediamine<br>68479-98-1 | - | 1 mg/kg bw/day [4] [6] | 0.13 mg/m³ [4] [6] |
| Diethylenetriamine<br>111-40-0 | - | 11.4 mg/kg bw/day [4] [6]<br>1.1 mg/cm2 [5] [6] | 15.4 mg/m³ [4] [6]<br>92.1 mg/m³ [4] [7]<br>0.87 mg/m³ [5] [6]<br>2.6 mg/m³ [5] [7] |
| 1-Piperazineethanamine<br>140-31-8 | - | 3.33 mg/kg bw/day [4] [6] | 10.6 mg/m³ [4] [6]<br>10.6 mg/m³ [4] [7]<br>15 µg/m³ [5] [6]<br>80 mg/m³ [5] [7] |

**Notes**

**[4]** Systemic health effects.
**[5]** Local health effects.
**[6]** Long term.
**[7]** Short term.

**Derived No Effect Level (DNEL) - General Public**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Diethyltoluenediamine | 0.1 mg/kg bw/day [4] [6] | - | 0.1 mg/m³ [4] [6] |

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| 68479-98-1 | | | |
| Diethylenetriamine<br>111-40-0 | - | 4.88 mg/kg bw/day [4] [6]<br>4.88 mg/kg bw/day [4] [7] | 4.6 mg/m³ [4] [6]<br>27.5 mg/m³ [4] [7] |

**Notes**

**[4]** Systemic health effects.
**[6]** Long term.
**[7]** Short term.

**Predicted No Effect Concentration (PNEC)**

| Chemical name | Freshwater | Freshwater (intermittent release) | Marine water | Marine water (intermittent release) | Air |
|---|---|---|---|---|---|
| Diethylenetriamine<br>111-40-0 | 0.56 mg/L | 0.32 mg/L | 0.056 mg/L | - | - |
| 1-Piperazineethanamine<br>140-31-8 | 0.058 mg/L | 0.58 mg/L | 0.0058 mg/L | - | - |

| Chemical name | Freshwater sediment | Marine sediment | Sewage treatment | Soil | Food chain |
|---|---|---|---|---|---|
| Diethylenetriamine<br>111-40-0 | 1072 mg/kg sediment dw | 107.2 mg/kg sediment dw | 6 mg/L | 7.97 mg/kg soil dw | - |
| 1-Piperazineethanamine<br>140-31-8 | 215 mg/kg sediment dw | 21.5 mg/kg sediment dw | 250 mg/L | 1 mg/kg soil dw | - |

**8.2. Exposure controls**

**Engineering controls** No information available.

**Personal protective equipment**

**Eye/face protection** Tight sealing safety goggles. Face protection shield.

**Hand protection** Wear suitable gloves. Impervious gloves.

**Skin and body protection** Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

**Respiratory protection** Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

**Environmental exposure controls** No information available.

## SECTION 9: Physical and chemical properties

**9.1. Information on basic physical and chemical properties**

| | |
|---|---|
| **Physical state** | Liquid |
| **Appearance** | Amber Liquid |
| **Color** | amber |
| **Odor** | Mild ammonia odor. |
| **Odor threshold** | No information available |

| **Property** | **Values** | **Remarks • Method** |
|---|---|---|
| **Melting point / freezing point** | No data available | None known |
| **Initial boiling point and boiling range** | No data available | None known |
| **Flammability** | No data available | None known |
| **Flammability Limit in Air** | | None known |
| **Upper flammability or explosive limits** | No data available | |
| **Lower flammability or explosive limits** | f.p. at or above 93.33 °C / 200°F | |
| **Flash point** | 175 °C / 347 °F | None known |
| **Autoignition temperature** | No data available | None known |
| **Decomposition temperature** | | None known |
| **pH** | No data available | None known |
| **pH (as aqueous solution)** | No data available | None known |
| **Kinematic viscosity** | No data available | None known |
| **Dynamic viscosity** | No data available | None known |
| **Water solubility** | No data available | None known |
| **Solubility(ies)** | No data available | None known |
| **Partition coefficient** | No data available | None known |
| **Vapor pressure** | < 1.0 mmHg @ 20 °C / 70 °F | None known |
| **Relative density** | 1.01 | None known |
| **Bulk density** | No data available | |
| **Liquid Density** | No data available | |
| **Relative vapor density** | >1 | None known |
| **Particle characteristics** | | |
| **Particle Size** | No information available | |
| **Particle Size Distribution** | No information available | |

**9.2. Other information**

*9.2.1. Information with regard to physical hazard classes*
Not applicable

*9.2.2. Other safety characteristics*
No information available

## SECTION 10: Stability and reactivity

**10.1. Reactivity**

**Reactivity** No information available.

**10.2. Chemical stability**

**Stability** Stable under normal conditions.

**Explosion data**
**Sensitivity to mechanical impact** None.
**Sensitivity to static discharge** None.

**10.3. Possibility of hazardous reactions**

**Possibility of hazardous reactions** None under normal processing.

**10.4. Conditions to avoid**

**Conditions to avoid** Exposure to air or moisture over prolonged periods.

**10.5. Incompatible materials**

**Incompatible materials** Acids. Bases. Oxidizing agent.

**10.6. Hazardous decomposition products**

**Hazardous decomposition products** None known based on information supplied.

## SECTION 11: Toxicological information

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Information on likely routes of exposure**

**Product Information**

**Inhalation** Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.

**Eye contact** Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.

**Skin contact** Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns. May cause sensitization by skin contact. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. May be absorbed through the skin in harmful amounts. Harmful in contact with skin.

**Ingestion** Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

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

**Symptoms** Redness. Burning. May cause blindness. Coughing and/ or wheezing. Itching. Rashes. Hives.

**Acute toxicity** Harmful if swallowed. Harmful by skin contact.

**Numerical measures of toxicity**

**The following ATE values have been calculated for the mixture**

| | |
|---|---|
| **ATEmix (oral)** | 470.30 mg/kg |
| **ATEmix (dermal)** | 1,382.00 mg/kg |

**ATEmix (inhalation-dust/mist)** 70.70 mg/l

**Component Information**

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Diethyltoluenediamine | = 485 mg/kg ( Rat ) | = 700 mg/kg ( Rabbit ) | - |
| Cyclohexanamine, 4,4-methylenebis- | = 380 mg/kg ( Rat ) | = 2110 mg/kg ( Rabbit ) | - |
| Diethylenetriamine | = 1080 mg/kg ( Rat ) | = 672 mg/kg ( Rabbit ) | = 70 mg/L ( Rat ) 4 h |
| 1-Piperazineethanamine | = 2140 µL/kg ( Rat ) | = 866 mg/kg ( Rabbit ) | - |

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

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes severe skin burns and eye damage.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye damage. Causes burns.

**Respiratory or skin sensitization** May cause an allergic skin reaction.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** No information available.

**Reproductive toxicity** No information available.

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

**STOT - repeated exposure** May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard** No information available.

**11.2. Information on other hazards**

**11.2.1. Endocrine disrupting properties**

**Endocrine disrupting properties** No information available.

**11.2.2. Other information**

**Other adverse effects** No information available.

## SECTION 12: Ecological information

**12.1. Toxicity**

**Ecotoxicity** Very toxic to aquatic life with long lasting effects.

| Chemical name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|---|---|---|---|---|
| Diethylenetriamine | EC50: =1164mg/L (72h, Pseudokirchneriella subcapitata)<br>EC50: =345.6mg/L (96h, Pseudokirchneriella subcapitata)<br>EC50: =592mg/L (96h, Desmodesmus subspicatus) | LC50: =248mg/L (96h, Poecilia reticulata)<br>LC50: =1014mg/L (96h, Poecilia reticulata) | - | EC50: =16mg/L (48h, Daphnia magna) |
| 1-Piperazineethanamine | EC50: =495mg/L (72h, Pseudokirchneriella subcapitata) | LC50: 1950 - 2460mg/L (96h, Pimephales promelas)<br>LC50: >1000mg/L (96h, Poecilia reticulata)<br>LC50: >=100mg/L (96h, Oncorhynchus mykiss) | - | EC50: =32mg/L (48h, Daphnia magna) |

**12.2. Persistence and degradability**

**Persistence and degradability** No information available.

**12.3. Bioaccumulative potential**

**Bioaccumulation**

**Component Information**

| Chemical name | Partition coefficient |
|---|---|
| Diethyltoluenediamine | 1.4 |
| Cyclohexanamine, 4,4-methylenebis- | 2.2 |
| Diethylenetriamine | -1.3 |
| 1-Piperazineethanamine | -1.48 |

**12.4. Mobility in soil**

**Mobility in soil** No information available.

**12.5. Results of PBT and vPvB assessment**

**PBT and vPvB assessment** The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

| Chemical name | PBT and vPvB assessment |
|---|---|
| Diethyltoluenediamine | Not PBT/vPvB |
| Cyclohexanamine, 4,4-methylenebis- | Not PBT/vPvB |
| Diethylenetriamine | Not PBT/vPvB |
| 1-Piperazineethanamine | Not PBT/vPvB |

**12.6. Endocrine disrupting properties**

**Endocrine disrupting properties** No information available.

**12.7. Other adverse effects**

No information available.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**

| | |
|---|---|
| **Waste from residues/unused products** | Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation. |
| **Contaminated packaging** | Do not reuse empty containers. |

## SECTION 14: Transport information

**IATA**

| | |
|---|---|
| **14.1 UN number or ID number** | 2735 |
| **14.2 UN proper shipping name** | Amines, liquid, corrosive, n.o.s. (4,4'-Methylenebiscyclohexanamine, Dietyltoluenediamine) |
| **14.3 Transport hazard class(es)** | 8 |
| **14.4 Packing group** | II |
| **14.5 Environmental hazards** | Marine Pollutant |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

**IMDG**

| | |
|---|---|
| **14.1 UN number or ID number** | 2735 |
| **14.2 UN proper shipping name** | Amines, liquid, corrosive, n.o.s. (4,4'-Methylenebiscyclohexanamine, Dietyltoluenediamine) |
| **14.3 Transport hazard class(es)** | 8 |
| **14.4 Packing group** | II |
| **14.5 Environmental hazards** | Marine Pollutant |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |
| **EmS-No.** | F-A, S-B |
| **14.7 Maritime transport in bulk according to IMO instruments** | No information available |

**RID**

| | |
|---|---|
| **14.1 UN number or ID number** | 2735 |
| **14.2 UN proper shipping name** | Amines, liquid, corrosive, n.o.s. (4,4'-Methylenebiscyclohexanamine, Dietyltoluenediamine) |
| **14.3 Transport hazard class(es)** | 8 |
| **14.4 Packing group** | II |
| **14.5 Environmental hazards** | Marine Pollutant |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

**ADR**

| | |
|---|---|
| **14.1 UN number or ID number** | 2735 |
| **14.2 UN proper shipping name** | Amines, liquid, corrosive, n.o.s. (4,4'-Methylenebiscyclohexanamine, Dietyltoluenediamine) |
| **14.3 Transport hazard class(es)** | 8 |
| **14.4 Packing group** | II |
| **14.5 Environmental hazards** | Marine Pollutant |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

## SECTION 15: Regulatory information

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

**National regulations**

**France**

**Occupational Illnesses (R-463-3, France)**

| Chemical name | French RG number |
|---|---|
| Diethylenetriamine - 111-40-0 | RG 49,RG 49bis |

**Germany**

**Water hazard class (WGK)** strongly hazardous to water (WGK 3)

**TA Luft (German Air Pollution Control Regulation)**

| Chemical name | Number | Class |
|---|---|---|
| Diethylenetriamine | 5.2.5 | Class I |

**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Authorizations and/or restrictions on use:**

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

| Chemical name | Restricted substance per REACH Annex XVII | Substance subject to authorization per REACH Annex XIV |
|---|---|---|
| Diethyltoluenediamine - 68479-98-1 | 75 | - |
| Diethylenetriamine - 111-40-0 | 75 | - |
| 1-Piperazineethanamine - 140-31-8 | 75 | - |

**Persistent Organic Pollutants**

Not applicable

**Dangerous substance category per Seveso Directive (2012/18/EU)**

E1 - Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1

**Ozone-depleting substances (ODS) Regulation (EU) 2024/590**

Not applicable

**International Inventories**

| | |
|---|---|
| **TSCA** | Contact supplier for inventory compliance status |
| **DSL/NDSL** | Contact supplier for inventory compliance status |
| **EINECS/ELINCS** | Contact supplier for inventory compliance status |
| **ENCS** | Contact supplier for inventory compliance status |
| **IECSC** | Contact supplier for inventory compliance status |
| **KECL** | Contact supplier for inventory compliance status |
| **PICCS** | Contact supplier for inventory compliance status |
| **AIIC** | Contact supplier for inventory compliance status |
| **NZIoC** | Contact supplier for inventory compliance status |

**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
**AIIC** - Australian Inventory of Industrial Chemicals
**NZIoC** - New Zealand Inventory of Chemicals

**15.2. Chemical safety assessment**

**Chemical Safety Report** No information available

## SECTION 16: Other information

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**Full text of any hazard and/or precautionary statements referred to under Sections 2-15**
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H373 - May cause damage to organs through prolonged or repeated exposure
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

**Legend**
SVHC: Substances of Very High Concern for Authorization:
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances
vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances
STOT: Specific Target Organ Toxicity
ATE: Acute Toxicity Estimate
LC50: 50% Lethal Concentration
LD50: 50% Lethal Dose

**Legend Section 8: Exposure controls/personal protection**

| | | | |
|---|---|---|---|
| TWA | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| Ceiling | Maximum limit value | Sk* | Skin designation |
| + | Sensitizers | | |

| Classification procedure | |
|---|---|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used |
| Acute oral toxicity | Calculation method |
| Acute dermal toxicity | Calculation method |
| Acute inhalation toxicity - gas | Calculation method |
| Acute inhalation toxicity - vapor | Calculation method |
| Acute inhalation toxicity - dust/mist | Calculation method |
| Skin corrosion/irritation | Calculation method |
| Serious eye damage/eye irritation | Calculation method |
| Respiratory sensitization | Calculation method |
| Skin sensitization | Calculation method |
| Mutagenicity | Calculation method |
| Carcinogenicity | Calculation method |
| Reproductive toxicity | Calculation method |
| STOT - single exposure | Calculation method |
| STOT - repeated exposure | Calculation method |

| | |
|---|---|
| Chronic aquatic toxicity | Calculation method |
| Acute aquatic toxicity | Calculation method |
| Aspiration hazard | Calculation method |
| Ozone | Calculation method |

**Key literature references and sources for data used to compile the SDS**
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

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**Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)**
**Disclaimer**
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**End of Safety Data Sheet**