

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

SAFETY DATA SHEET

FOR INDUSTRIAL USE ONLY

EPIKURE™ Curing Agent MGS LH 286

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

1.1 Product identifier

Product name : EPIKURE™ Curing Agent MGS LH 286
SDS Number : 16S-00026
Product type : Curing Agent

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

Product use : Epoxy Resin Systems

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier/Importer : Hexion B.V.
Seattleweg 17
3195 ND Pernis - Rotterdam
The Netherlands

Contact person : service@hexion.com

Telephone : General information
+31 (0)10 295 4000

1.4

Emergency telephone number
Supplier : CARECHEM24
Telephone number : +44 (0) 1235 239 670

SECTION 2: Hazards identification


2.1 Classification of the substance or mixture

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

Acute Tox. 4 H302
Acute Tox. 3 H311
Acute Tox. 3 H331
Skin Corr./Irrit. 1A H314
Eye Dam./Irrit. 1 H318
Skin Sens. 1 H317
STOT RE 2 H373
Aquatic Chronic 2 H411

See Section 16 for the full text of the H statements declared above.

2.2 Label elements

Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	Toxic in contact with skin or if inhaled. Harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause damage to organs through prolonged or repeated exposure. Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention	:	Wear protective gloves. Wear eye or face protection. Wear protective clothing. Avoid release to the environment. Do not breathe vapor.
Response	:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER or physician. IF IN EYES: Immediately call a POISON CENTER or physician.
Storage	:	Store locked up.
Disposal	:	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazardous ingredients	:	2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine) 3-aminomethyl-3,5,5-trimethylcyclohexylamine 3-aminopropyltriethoxysilane
Supplemental label elements	:	Not applicable.

2.3 Other hazards

Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII	:	Not applicable.
Substance meets the criteria for	:	Not applicable.

**vPvB according to Regulation
(EC) No. 1907/2006, Annex XIII**

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

Substance/mixture : Mixture

Product/ingredient name	Identifiers	% by weight	Classification	Type
			Regulation (EC) No. 1272/2008 [CLP]	
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	RRN : 01-2119497829-12 EC:229-962-1 CAS : 6864-37-5 Index:612-110-00-1	>=50 - <75	Acute Tox. 4, H302 Acute Tox. 3, H311 Acute Tox. 2, H330 Skin Corr./Irrit. 1A, H314 STOT RE 2, H373 Aquatic Chronic 2, H411	[1]
3-aminomethyl-3,5,5-trimethylcyclohexylamine	RRN : 01-2119514687-32 EC:220-666-8 CAS : 2855-13-2 Index:612-067-00-9	>=25 - <35	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr./Irrit. 1B, H314 Eye Dam./Irrit. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412	[1]
benzyl alcohol	RRN : 01-2119492630-38 EC:202-859-9 CAS : 100-51-6 Index:603-057-00-5	>=3 - <7	Acute Tox. 4, H302 Acute Tox. 4, H332 Eye Dam./Irrit. 2, H319	[1]
3-aminopropyltriethoxysilane	RRN : 01-2119480479-24 EC:213-048-4 CAS : 919-30-2 Index:612-108-00-0	>=0.1 - <1	Acute Tox. 4, H302 Skin Corr./Irrit. 1B, H314 Skin Sens. 1, H317	[1]
4-nonylphenol, branched	RRN : 01-2119510715-45 EC:284-325-5 CAS : 84852-15-3 Index:601-053-00-8	>=0.25 - <0.5	Acute Tox. 4, H302 Skin Corr./Irrit. 1B, H314 Eye Dam./Irrit. 1, H318 Repr. 2, H361f Repr. 2, H361d Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	RRN : 01-2119497829-12 EC:229-962-1 CAS : 6864-37-5 Index:612-110-00-1	>=50 - <=75	Acute Tox. 4, H302 Acute Tox. 3, H311 Acute Tox. 2, H330 Skin Corr./Irrit. 1A, H314 STOT RE 2, H373 Aquatic Chronic 2, H411	[1]
3-aminomethyl-3,5,5-trimethylcyclohexylamine	RRN : 01-2119514687-32 EC:220-666-8 CAS : 2855-13-2 Index:612-067-00-9	>=25 - <=50	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr./Irrit. 1B, H314 Eye Dam./Irrit. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412	[1]
benzyl alcohol	RRN : 01-2119492630-38	>0 - <=5	Acute Tox. 4, H302 Acute Tox. 4, H332	[1]

	EC:202-859-9 CAS : 100-51-6 Index:603-057-00-5		Eye Dam./Irrit. 2, H319	
4-nonylphenol, branched	RRN : 01-2119510715-45 EC:284-325-5 CAS : 84852-15-3 Index:601-053-00-8	>0 - <1	Acute Tox. 4, H302 Skin Corr./Irrit. 1B, H314 Eye Dam./Irrit. 1, H318 Repr. 2, H361f Repr. 2, H361d Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
3-aminopropyltriethoxysilane	RRN : 01-2119480479-24 EC:213-048-4 CAS : 919-30-2 Index:612-108-00-0	>0 - <1	Acute Tox. 4, H302 Skin Corr./Irrit. 1B, H314 Skin Sens. 1, H317	[1]

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

See Section 16 for the full text of the H statements declared above.

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

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

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If

material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact : Causes serious eye damage.
Inhalation : Toxic if inhaled.
Skin contact : Causes severe burns. Toxic in contact with skin. May cause an allergic skin reaction.
Ingestion : Harmful if swallowed.

Over-exposure signs/symptoms

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

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion : Adverse symptoms may include the following:
stomach pains

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage

with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

- 6.4 Reference to other sections** :
- See Section 1 for emergency contact information.
 - See Section 8 for information on appropriate personal protective equipment.
 - See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Protective measures** :
- Put on appropriate personal protective equipment (see section 8 of SDS). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** :
- Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

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

7.3 Specific end use(s)

- Recommendations** :
- Not available
- Industrial sector specific solutions** :
- Not available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

- Recommended monitoring procedures** :
- If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such

as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNEL/DMEL Summary : Not available

PNEC Summary : Not available

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

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

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

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Material: 730 Camatril
Minimum break through time: 480 min

Material: 898 Butoject
Minimum break through time: 480 min
Producer: This recommendation is valid only for our Product as delivered. If this product will be mixed with other substances you

need to contact a supplier of CE approved protective gloves (e.g. KCL GmbH, D-36124 Eichenzell, Tel. 0049 (0) 6659 87300, Fax. 0049 (0) 6659 87155, email: vertrieb@kcl.de).

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- General protective measures** : Chemical splash goggles or face shield. Chemical-resistant gloves. Suitable protective footwear. Light protective clothing. Eyewash bottle with clean water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Liquid
- Color** : Blue.
- Odor** : amine.
- Odor threshold** : Not available (not measured)
- pH** : Not available (not measured)
- Melting point/freezing point** : Not available (not measured)
- Initial boiling point and boiling range** : Greater than 200 °C
- Flash point** : Greater than 120 °C
- Evaporation rate** : Not available (not measured)
- Upper/lower flammability or explosive limits** : **Lower:** Not available (not measured)
Upper: Not available (not measured)
- Vapor pressure** : Not available (not measured)
- Vapor density** : Not available (not measured)
- Relative density** : Not available (not measured)
- Density** : Approx. 0.940 g/cm³
- Solubility(ies)** : Not available (not measured)
- Solubility in water** : insoluble
- Partition coefficient: n-octanol/water** : Not available (not measured)
- Auto-ignition temperature** : Not available (not measured)
- Decomposition temperature** : Not available (not measured)
- Viscosity** : **Dynamic:** Approx. 60 - 100 mPa·s @ 20 °C (ISO 9371)

Explosive properties : Kinematic: Not available (not measured)
 : Not available (not measured)
Oxidizing properties : Not available (not measured)
 : Not available (not measured)

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

- 10.1 Reactivity** : Stable under normal conditions.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : No specific data.
- 10.5 Incompatible materials** : No specific data.
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)				
	LD50 Oral	Rat	> 320 - 460 mg/kg	-
	LC50 Inhalation	Rat	0.42 mg/l	4 h
	LD50 Dermal	Rabbit	> 200 - 400 mg/kg	-
3-aminomethyl-3,5,5-trimethylcyclohexylamine				
	LD50 Oral	Rat	1,030 mg/kg	-
benzyl alcohol				
	LD50 Oral	Rat	1,230 mg/kg	-
	LC50 Inhalation	Rat	> 4.178 mg/l	4 h
	LD50 Dermal	Rabbit	2,000 mg/kg	-
4-nonylphenol, branched				
	LD50 Oral	Rat	1,300 mg/kg	-
3-aminopropyltriethoxysilane				
	LD50 Oral	Rat	1,570 mg/kg	-
	LD50 Oral	Rat - Female	1,570 mg/kg	-
	LD50 Oral	Rat	4,000 mg/kg	-
	LC50 Inhalation	Rat - Male		6 h
	LC50 Inhalation	Rat - Female		6 h
	LD50 Dermal	Rabbit	4,290 mg/kg	-
4-nonylphenol, branched				
	LD50 Oral	Rat	1,300 mg/kg	-
3-aminopropyltriethoxysilane				

	LD50 Oral	Rat	1,570 mg/kg	-
	LD50 Oral	Rat - Female	1,570 mg/kg	-
	LD50 Oral	Rat	4,000 mg/kg	-
	LC50 Inhalation	Rat - Male		6 h
	LC50 Inhalation	Rat - Female		6 h
	LD50 Dermal	Rabbit	4,290 mg/kg	-
benzyl alcohol				
	LD50 Oral	Rat	1,230 mg/kg	-
	LC50 Inhalation	Rat	> 4.178 mg/l	4 h
	LD50 Dermal	Rabbit	2,000 mg/kg	-
3-aminomethyl-3,5,5-trimethylcyclohexylamine				
	LD50 Oral	Rat	1,030 mg/kg	-
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)				
	LD50 Oral	Rat	> 320 - 460 mg/kg	-
	LC50 Inhalation	Rat	0.42 mg/l	4 h
	LD50 Dermal	Rabbit	> 200 - 400 mg/kg	-

Conclusion/Summary : Not available

Acute toxicity estimates

Not available

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
benzyl alcohol	Skin - Moderate irritant	Rabbit		24 hrs	-
4-nonylphenol, branched	Skin - Severe irritant	Rabbit		24 hrs	-
	eyes - Severe irritant	Rabbit			-
3-aminopropyltriethoxysilane	eyes - Severe irritant	Rabbit		24 hrs	-
	Skin - Severe irritant	Rabbit		24 hrs	-
	eyes - Mild irritant	Rabbit			-
4-nonylphenol, branched	Skin - Severe irritant	Rabbit		24 hrs	-
	eyes - Severe irritant	Rabbit			-
3-aminopropyltriethoxysilane	eyes - Severe irritant	Rabbit		24 hrs	-
	Skin - Severe irritant	Rabbit		24 hrs	-

	eyes - Mild irritant	Rabbit			-
benzyl alcohol	Skin - Moderate irritant	Rabbit		24 hrs	-

Conclusion/Summary

Skin : Not available
eyes : Not available
Respiratory : Not available

Sensitization

Product/ingredient name	Route of exposure	Species	Result
3-aminopropyltriethoxysilane	Skin	Guinea pig	Positive
	Skin	Guinea pig	Positive

Conclusion/Summary

Skin : Not available
Respiratory : Not available

Mutagenicity

Conclusion/Summary : Not available

Carcinogenicity

Conclusion/Summary : Not available

Reproductive toxicity

Conclusion/Summary : Not available

Teratogenicity

Conclusion/Summary : Not available

Specific target organ toxicity (single exposure)

Not available

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Category 2		adrenal kidneys respiratory tract liver heart blood system skin
	Category 1		heart liver kidneys blood system adrenal
	Category 2		heart liver kidneys blood system adrenal

Aspiration hazard

Not available

Information on likely routes of exposure : Not available

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Toxic if inhaled.
- Skin contact** : Causes severe burns. Toxic in contact with skin. May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
 pain
 watering
 redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
 pain or irritation
 redness
 blistering may occur
- Ingestion** : Adverse symptoms may include the following:
 stomach pains

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

Short term exposure

- Potential immediate effects** : Not available
- Potential delayed effects** : Not available

Long term exposure

- Potential immediate effects** : Not available
- Potential delayed effects** : Not available

Potential chronic health effects

- Conclusion/Summary** : Not available
- General** : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)			
	Acute LC50 31.6 mg/l	Fish - Ide, Silver or Golden Orfe	96 h
	Acute EC50 4.6 mg/l	Aquatic invertebrates. Water flea	48 h

	Acute EC50 > 5 mg/l	Aquatic plants - Green algae	72 h
3-aminomethyl-3,5,5-trimethylcyclohexylamine			
	Acute EC50 17.4 mg/l Fresh water	Aquatic invertebrates. Daphnia	48 h
benzyl alcohol			
	Acute LC50 10,000 µg/l Fresh water	Fish - Bluegill	96 h
4-nonylphenol, branched			
	Acute LC50 138.25 µg/l Fresh water	Fish - Fathead minnow	96 h
	Acute LC50 135.1 µg/l Fresh water	Fish - Bluegill	96 h
	Acute EC50 0.33 mg/l Fresh water	Aquatic plants - Green algae	72 h
	Acute EC50 0.41 mg/l Fresh water	Aquatic plants - Green algae	96 h
3-aminopropyltriethoxysilane			
	Acute LC50 > 934 mg/l - 203 Fish, Acute Toxicity Test	Fish - Zebra danio	96 h
	Acute EC50 331 mg/l - 202 Daphnia sp. Acute Immobilization Test and Reproduction Test	Aquatic invertebrates. Water flea	48 h
	Acute EC50 > 1,000 mg/l -	Aquatic plants - Algae	72 h
	Acute No-observable-effect-concentration 1.3 mg/l -	Aquatic plants - Algae	72 h
4-nonylphenol, branched			
	Acute LC50 138.25 µg/l Fresh water	Fish - Fathead minnow	96 h
	Acute LC50 135.1 µg/l Fresh water	Fish - Bluegill	96 h
	Acute EC50 0.33 mg/l Fresh water	Aquatic plants - Green algae	72 h
	Acute EC50 0.41 mg/l Fresh water	Aquatic plants - Green algae	96 h
3-aminopropyltriethoxysilane			
	Acute LC50 > 934 mg/l - 203 Fish, Acute Toxicity Test	Fish - Zebra danio	96 h
	Acute EC50 331 mg/l - 202 Daphnia sp. Acute Immobilization Test and Reproduction Test	Aquatic invertebrates. Water flea	48 h
	Acute EC50 > 1,000 mg/l -	Aquatic plants - Algae	72 h
	Acute No-observable-effect-concentration 1.3 mg/l -	Aquatic plants - Algae	72 h
benzyl alcohol			
	Acute LC50 10,000 µg/l Fresh water	Fish - Bluegill	96 h
3-aminomethyl-3,5,5-trimethylcyclohexylamine			
	Acute EC50 17.4 mg/l Fresh water	Aquatic invertebrates. Daphnia	48 h
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)			
	Acute LC50 31.6 mg/l	Fish - Ide, Silver or Golden Orfe	96 h
	Acute EC50 4.6 mg/l	Aquatic invertebrates. Water flea	48 h
	Acute EC50 > 5 mg/l	Aquatic plants - Green algae	72 h

Conclusion/Summary : Not available

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
3-		-		

aminopropyltriethoxysilane				
Remarks:	Not readily			
		-		
Remarks:	Not readily			

Conclusion/Summary : Not available

12.3 Bioaccumulative potential

Not available

12.3 Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	2.3	< 60 <= 6	low
3-aminomethyl-3,5,5-trimethylcyclohexylamine	0.99	-	low
benzyl alcohol	1.1	-	low
4-nonylphenol, branched	5.4	2.4	low
3-aminopropyltriethoxysilane	1.7	3.40	low
4-nonylphenol, branched	5.4	2.4	low
3-aminopropyltriethoxysilane	1.7	3.40	low
benzyl alcohol	1.1	-	low
3-aminomethyl-3,5,5-trimethylcyclohexylamine	0.99	-	low
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	2.3	< 60 <= 6	low

12.4 Mobility in soil

Soil/water partition coefficient (KOC) : Not available

Mobility : Not available

12.5 Results of PBT and vPvB assessment

PBT : P: Not available
 B: Not available
 T: Not available

vPvB : vP: Not available
 vB: Not available

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local

Hazardous waste : authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.
: The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

Regulatory information	14.1. UN number	14.2. UN proper shipping name	14.3. Transport hazard class(es)	14.4. Packing group
ADR/ADN	2922	CORROSIVE LIQUID, TOXIC, N.O.S. (Cyclohexylamine)	8 (6.1)	II
RID	2922	CORROSIVE LIQUID, TOXIC, N.O.S. (Cyclohexylamine)	8 (6.1)	II
ICAO/IATA	2922	CORROSIVE LIQUID, TOXIC, N.O.S. (Cyclohexylamine)	8 (6.1)	II
IMO/IMDG	2922	CORROSIVE LIQUID, TOXIC, N.O.S. (Cyclohexylamine)	8 (6.1)	II

14.5. Environmental hazards

Environmentally hazardous and/or Marine Pollutant : Yes.



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

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Substances of very high concern

Carcinogen: Not listed

Mutagen: Not listed

Toxic to reproduction: Not listed

PBT: Not listed

vPvB: Not listed

Other EU regulations

REACH Status : The substance(s) in this product has (have) been Registered, or are exempted from registration, according to Regulation (EC) No. 1907/2006 (REACH).

Aerosol dispensers : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

EU - Prior Informed Consent. List of chemicals subject to the international PIC procedure (Annex I - Part 1) : Not listed

EU - Prior Informed Consent. List of chemicals subject to the international PIC procedure (Annex I - Part 2) : Not listed

EU - Prior Informed Consent. List of chemicals subject to the international PIC procedure (Annex I - Part 3) : Not listed

AOX : Not available

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
4-nonylphenol, branched	-	-	-	Repr. 2, H361f

	-	-	-	Repr. 2, H361f
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Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
H2: Acute toxicity 2 any route of entry or Acute toxicity 3 Inhalation route of entry E2: Hazardous to the aquatic environment - Chronic 2

National regulations

Hazard class for water : WGK 3, Appendix No. 4

Technical instruction on air quality control : Number 5.2.5:
Number 5.2.5:

International regulations

- International lists** :
- Australia inventory (AICS) Not determined.
 - Canada inventory At least one component is not listed in DSL but all such components are listed in NDSL.
 - Japan inventory Not determined.
 - China inventory (IECSC) All components are listed or exempted.
 - Korea inventory All components are listed or exempted.
 - New Zealand Inventory (NZIoC) Not determined.
 - Philippines inventory (PICCS) All components are listed or exempted.
 - United States inventory (TSCA 8b) All components are listed or exempted.
 - Taiwan inventory (CSNN) All components are listed or exempted.

**Chemical Weapons Convention
List Schedule I Chemicals** : Not listed

: Not listed
**Chemical Weapons Convention
List Schedule II Chemicals** : Not listed

: Not listed
**Chemical Weapons Convention
List Schedule III Chemicals** : Not listed

: Not listed

- 15.2 Chemical Safety Assessment** : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

- Abbreviations and acronyms** :
- ATE = Acute Toxicity Estimate
 - CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 - DNEL = Derived No Effect Level
 - DMEL = Derived Minimal Effect Level
 - EUH statement = CLP-specific Hazard statement
 - PNEC = Predicted No Effect Concentration
 - RRN = REACH Registration Number
 - PBT = Persistent, Bioaccumulative and Toxic
 - vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Acute Tox. 4, H302 (oral)	Calculation method
Acute Tox. 3, H311 (dermal)	Calculation method
Acute Tox. 3, H331 (inhalation)	Calculation method
Skin Corr./Irrit. 1A, H314	Calculation method
Eye Dam./Irrit. 1, H318	Calculation method
Skin Sens. 1, H317	Calculation method
STOT RE 2, H373	Calculation method
Aquatic Chronic 2, H411	Calculation method

Full text of abbreviated H statements :

H302 (oral)	Harmful if swallowed.
H311 (dermal)	Toxic in contact with skin.
H312 (dermal)	Harmful in contact with skin.

H314	Causes severe skin burns and eye damage.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330 (inhalation)	Fatal if inhaled.
H331 (inhalation)	Toxic if inhaled.
H332 (inhalation)	Harmful if inhaled.
H361fd (Fertility, Unborn child)	Suspected of damaging fertility. Suspected of damaging the unborn child.
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.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
H302 (oral)	Harmful if swallowed.
H311 (dermal)	Toxic in contact with skin.
H312 (dermal)	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330 (inhalation)	Fatal if inhaled.
H332 (inhalation)	Harmful if inhaled.
H361fd (Fertility, Unborn child)	Suspected of damaging fertility. Suspected of damaging the unborn child.
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.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Acute Tox. 3, H311	ACUTE TOXICITY (dermal) - Category 3
Acute Tox. 4, H312	ACUTE TOXICITY (dermal) - Category 4

Full text of classifications
 [CLP/GHS]

:

Skin Corr./Irrit. 1A, H314	SKIN CORROSION/IRRITATION - Category 1A
Skin Corr./Irrit. 1B, H314	SKIN CORROSION/IRRITATION - Category 1B
Skin Sens. 1, H317	SKIN SENSITISATION - Category 1
Eye Dam./Irrit. 1, H318	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Eye Dam./Irrit. 2, H319	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Acute Tox. 2, H330	ACUTE TOXICITY (inhalation) - Category 2
Acute Tox. 3, H331	ACUTE TOXICITY (inhalation) - Category 3
Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4
Repr. 2, H361fd (Fertility, Unborn child)	REPRODUCTIVE TOXICITY (Fertility, Unborn child) - Category 2
STOT RE 2, H373	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
Aquatic Acute 1, H400	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1, H410	AQUATIC HAZARD (LONG-TERM) - Category 1
Aquatic Chronic 2, H411	AQUATIC HAZARD (LONG-TERM) - Category 2
Aquatic Chronic 3, H412	AQUATIC HAZARD (LONG-TERM) - Category 3
Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Acute Tox. 3, H311	ACUTE TOXICITY (dermal) - Category 3
Acute Tox. 4, H312	ACUTE TOXICITY (dermal) - Category 4
Skin Corr./Irrit. 1A, H314	SKIN CORROSION/IRRITATION - Category 1A
Skin Corr./Irrit. 1B, H314	SKIN CORROSION/IRRITATION - Category 1B
Skin Sens. 1, H317	SKIN SENSITISATION - Category 1
Eye Dam./Irrit. 1, H318	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Eye Dam./Irrit. 2, H319	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Acute Tox. 2, H330	ACUTE TOXICITY (inhalation) - Category 2
Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4
Repr. 2, H361fd (Fertility, Unborn child)	REPRODUCTIVE TOXICITY (Fertility, Unborn child) - Category 2

STOT RE 2, H373	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
Aquatic Acute 1, H400	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1, H410	AQUATIC HAZARD (LONG-TERM) - Category 1
Aquatic Chronic 2, H411	AQUATIC HAZARD (LONG-TERM) - Category 2
Aquatic Chronic 3, H412	AQUATIC HAZARD (LONG-TERM) - Category 3

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