

# SAFETY DATA SHEET

ARALDITE® CRYSTAL G HARDENER

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

### 1.1 Product identifier

**Product name** : ARALDITE® CRYSTAL G HARDENER  
**Registration number** : Not available.  
**Product code** : 00087379  
**Product description** :  
**Other means of identification** : Not available.

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

**Product use** : Hardener for adhesive systems

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

**Supplier** : EVOCHEM S.A.  
Tzaverdella Place  
133 41 PHILI , ATTICA - GREECE  
Phone.: 0030 210 5590460 , 0030 210 5590155 -  
Fax: 0030 210 6254737 , 0030 210 5590244

**e-mail address of person responsible for this SDS** : info@evochem.gr; vmergoupis@evochem.gr;  
sales@evochem.gr  
www.evochem.gr

**1.4 Emergency telephone number** : National Poisoning Center 2107793777

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

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

Skin Sens. 1, H317

Aquatic Chronic 3, H412

**Ingredients of unknown toxicity** :

**Ingredients of unknown ecotoxicity** :

**Classification according to Directive 1999/45/EC [DPD]**

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

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**SECTION 2: Hazards identification**

- Classification** : R43  
R52/53
- Human health hazards** : May cause sensitisation by skin contact.
- Environmental hazards** : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Additional information** : According to Directive 99/45/EC, Article 6, Paragraph 1b, classification derived from direct toxicological testing of the preparation take precedence over classification derived from using the conventional (calculation) method.

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

See Section 11 for more detailed information on health effects and symptoms.

**2.2 Label elements**



- Signal word** : Warning
- Hazard statements** : May cause an allergic skin reaction.  
Harmful to aquatic life with long lasting effects.

**Precautionary statements**

- General** : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.
- Prevention** : Wear protective gloves: > 8 hours (breakthrough time): butyl rubber, Ethyl Vinyl Alcohol Laminate (EVAL). Avoid release to the environment. Avoid breathing vapour.
- Response** : IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical attention.
- Storage** : Not applicable.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazardous ingredients** : N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine  
N,N-4-trimethylpiperazine-1-ethylamine
- Supplemental label elements** : Not applicable.

**Special packaging requirements**

- Containers to be fitted with child-resistant fastenings** : Not applicable.
- Tactile warning of danger** : Not applicable.

**2.3 Other hazards**

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

**SECTION 3: Composition/information on ingredients**

- 3.2 Mixtures** : Mixture

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**SECTION 3: Composition/information on ingredients**

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
2,2'-[1,2-Ethanediy]bis (oxy)]bis(ethanethiol)	CAS: 14970-87-7 EC: 239-044-2	7-13	Xn; R20/22 N; R51/53	Acute Tox. 4, H302 Acute Tox. 4, H332 Aquatic Chronic 2, H411	[1]
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	CAS: 10563-29-8 EC: 234-148-4	3-7	Xn; R22 C; R35 R43	Acute Tox. 4, H302 Skin Corr. 1A, H314 Eye Dam. 1, H318 Skin Sens. 1B, H317	[1]
N,N-4-trimethylpiperazine-1-ethylamine	CAS: 104-19-8 EC: 203-183-7	1-3	Xn; R21/22 C; R34 R43 R52/53	Acute Tox. 4, H302 Acute Tox. 3, H311 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317	[1]
N-butyl acetate	CAS: 123-86-4	1-3	R10	Aquatic Chronic 3, H412 Flam. Liq. 3, H226	[1]
	EC: 204-658-1		R66, R67	STOT SE 3, H336 (Narcotic effects)	[2]
			<b>See Section 16 for the full text of the R-phrases declared above.</b>	<b>See Section 16 for the full text of the H statements declared above.</b>	

Type

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

**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- 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** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

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## SECTION 4: First aid measures

- 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-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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

#### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

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

- Notes to physician** : 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** : Symptomatic treatment and supportive therapy as indicated. Following severe exposure the patient should be kept under medical review for at least 48 hours.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

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

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

- Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

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**SECTION 5: Firefighting measures**

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

**5.3 Advice for firefighters**

**Special precautions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

**SECTION 6: Accidental release measures**

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

**For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

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

**6.2 Environmental precautions**

: Avoid dispersal of 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.

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

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

**Large spill** : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the 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.

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**SECTION 7: Handling and storage**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**7.1 Precautions for safe handling**

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

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

**7.2 Conditions for safe storage, including any incompatibilities** : Store between the following temperatures: 2 to 40°C (35.6 to 104°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

**Storage hazard class Huntsman Advanced Materials** : Storage class 12, Liquids, not dangerous

**7.3 Specific end use(s)**

**Recommendations** : Not available.

**Industrial sector specific solutions** : Not available.

**SECTION 8: Exposure controls/personal protection**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**8.1 Control parameters**

**Occupational exposure limits**

Product/ingredient name	Exposure limit values
N-butyl acetate	<b>SUVA (Switzerland, 1/2014).</b> TWA: 100 ppm 8 hours. TWA: 480 mg/m <sup>3</sup> 8 hours. STEL: 200 ppm 15 minutes. STEL: 960 mg/m <sup>3</sup> 15 minutes.

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**SECTION 8: Exposure controls/personal protection**

**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.

**Derived effect levels**

Product/ingredient name	Type	Exposure	Value	Population	Effects
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	DNEL	Long term Inhalation	3.7 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Short term Inhalation	7.5 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Inhalation	3.7 mg/m <sup>3</sup>	Workers	Local
	DNEL	Short term Inhalation	7.5 mg/m <sup>3</sup>	Workers	Local
	DNEL	Long term Dermal	0.67 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.65 mg/m <sup>3</sup>	Consumers	Systemic
	DNEL	Long term Inhalation	0.65 mg/m <sup>3</sup>	Consumers	Local
	DNEL	Long term Oral	0.2 mg/kg bw/day	Consumers	Systemic

**Predicted effect concentrations**

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	PNEC	Fresh water	9.2 µg/l	Assessment Factors
	PNEC	Marine	0.92 µg/l	Assessment Factors
	PNEC	PNECintermittent	92 µg/l	Assessment Factors
	PNEC	Sewage Treatment Plant	18.1 mg/l	Assessment Factors
	PNEC	Fresh water sediment	0.0336 mg/kg	Equilibrium Partitioning
	PNEC	Marine water sediment	0.00336 mg/kg	Equilibrium Partitioning
	PNEC	Soil	0.00132 mg/kg	Equilibrium Partitioning

**8.2 Exposure controls**

**Appropriate engineering controls** : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

**Individual protection measures**

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

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**SECTION 8: Exposure controls/personal protection**

- 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: safety glasses with side-shields.
- 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.
- Material of gloves for long term application (BTT>480min):** : butyl rubber, Ethyl Vinyl Alcohol Laminate (EVAL)
- Material of gloves for short term/splash application (10min <BTT<480min):** : nitrile rubber, neoprene  
 (BTT = Break Through Time)
- Use gloves approved to relevant standards e.g. EN 374 (Europe), F739 (US). Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material and dexterity. Always seek advice from glove suppliers. Additional information can be found for instance at [www.gisbau.de](http://www.gisbau.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** : In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**SECTION 9: Physical and chemical properties**

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

**Appearance**

- Physical state** : Liquid.
- Colour** : Light yellow
- Odour** : Slight
- Odour threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : Not available.
- Initial boiling point and boiling range** : Not available.
- Flash point** : Closed cup: 110°C [DIN 51758 EN 22719 (Pensky-Martens Closed Cup)]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Burning time** : Not applicable.
- Burning rate** : Not applicable.

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II - Switzerland

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**SECTION 9: Physical and chemical properties**

**Upper/lower flammability or explosive limits** : Not available.  
**Vapour pressure** : Not available.  
**Vapour density** : Not available.  
**Relative density** : Not available.  
**Solubility(ies)**  
**Water solubility** : practically insoluble  
20 deg C  
**Partition coefficient: n-octanol/ water (LogK<sub>ow</sub>)** : Not available.  
**Auto-ignition temperature** : Not available.  
**Decomposition temperature** : >200°C  
**Viscosity** : Dynamic (25°C): 15 - 35 mPa·s  
Kinematic: Not available.  
Kinematic (40°C): Not available.  
**Explosive properties** : Not available.  
**Oxidising properties** : Not available.

**9.2 Other information**

**Density** : 1.16 g/cm<sup>3</sup> [20°C (68°F)]

**SECTION 10: Stability and reactivity**

**10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.  
**10.2 Chemical stability** : The product is stable.  
**10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.  
**10.4 Conditions to avoid** : No specific data.  
**10.5 Incompatible materials** : strong acids, strong bases, strong oxidising agents  
**10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.  
Decomposition products may include the following materials: Carbon oxides, Burning produces obnoxious and toxic fumes.

**SECTION 11: Toxicological information****11.1 Information on toxicological effects****Acute toxicity**

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**SECTION 11: Toxicological information**

Product/ingredient name	Endpoint	Species	Result	Exposure
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	LD50 Dermal	Rabbit	1310 mg/kg	-
	LD50 Oral	Rat - Male, Female	1669 mg/kg	-
N,N-4-trimethylpiperazine-1-ethylamine	LD50 Dermal	Rabbit	448 mg/kg	-
	LD50 Oral	Rat	677 mg/kg	-
N-butyl acetate	LD50 Dermal	Rabbit	>17600 mg/kg	-
	LD50 Oral	Guinea pig	4700 mg/kg	-
	LD50 Oral	Mouse	7060 mg/kg	-
	LD50 Oral	Rabbit	7437 mg/kg	-
	LD50 Oral	Rat	>8800 mg/kg	-

**Conclusion/Summary** : No additional information.

**Acute toxicity estimates**

Not available.

**Irritation/Corrosion**

Product/ingredient name	Test	Species	Route of exposure	Result
ARALDITE CRYSTAL G HARDENER	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin	Mild irritant
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes	Non-irritant.
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin	Corrosive

**Conclusion/Summary**

**Skin** : ARALDITE® CRYSTAL G HARDENER Non-irritating to the skin.  
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine Corrosive to the skin.

**Eyes** : ARALDITE® CRYSTAL G HARDENER Non-irritating to the eyes.  
No additional information.

**Respiratory** : No additional information.

**Sensitiser**

Product/ingredient name	Test	Route of exposure	Species	Result
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	OECD 406 Skin Sensitization	skin	Guinea pig	Sensitising
N-butyl acetate	-	skin	Guinea pig	Not sensitizing

**Conclusion/Summary**

**Skin** : No additional information.

**Respiratory** : No additional information.

**Mutagenicity**

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## SECTION 11: Toxicological information

Product/ingredient name	Test	Result
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	OECD 471 Bacterial Reverse Mutation Test	Negative
	OECD 476 In vitro Mammalian Cell Gene Mutation Test	Negative
	OECD OECD 487- In vitro Mammalian Cell Micronucleus Test	Negative
	N-butyl acetate	-

**Conclusion/Summary** : N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine Not mutagenic in a standard battery of genetic toxicological tests.

### Carcinogenicity

Product/ingredient name	Test	Species	Exposure	Result	Route of exposure	Target organs
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	No official guidelines	Mouse	20 months; 3 days per week	Negative	Dermal	-

**Conclusion/Summary** : No additional information.

### Reproductive toxicity

**Conclusion/Summary** : No additional information.

### Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	OECD 422 Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test	Rat - Male, Female	15 mg/kg NOAEL

**Conclusion/Summary** : No additional information.

### Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
N-butyl acetate	Category 3	Not applicable.	Narcotic effects

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Ingestion** : No known significant effects or critical hazards.
- Skin contact** : May cause an allergic skin reaction.
- Eye contact** : No known significant effects or critical hazards.

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

- Inhalation** : No specific data.
- Ingestion** : No specific data.

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**SECTION 11: Toxicological information**

**Skin contact** : Adverse symptoms may include the following:  
 irritation  
 redness

**Eye contact** : No specific data.

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

**Short term exposure**

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

**Long term exposure**

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

**Potential chronic health effects**

Product/ingredient name	Test	Result type	Result	Target organs
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	NOAEL -	1000 ppm	-
	No official guidelines	NOAEL	>56.3 mg/kg/d	-
	No official guidelines	NOEC Vapour	550 mg/m <sup>3</sup>	-

**Conclusion/Summary** : No additional information.

**General** : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

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

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

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

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

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

**Other information** : Not available.

**SECTION 12: Ecological information**

**12.1 Toxicity**

Product/ingredient name	Test	Endpoint	Exposure	Species	Result
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	DIN DIN 38412 Part 8	Acute EC50	16 hours Static	Bacteria	181 mg/l
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute EC50	48 hours Static	Daphnia	9.2 mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute ErC50 (growth rate)	72 hours Static	Algae	21 mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours Static	Fish	>100 mg/l
	OECD 201 Alga, Growth Inhibition Test	Chronic LOAEL	72 hours Static	Algae	5.7 mg/l
N-butyl acetate	-	Acute EC50	72 hours	Algae	674.7 mg/l
	-	Acute EC50	24 hours	Daphnia	205 mg/l
	-	Acute EC50	96 hours	Fish	185 mg/l
	-	Acute IC0	24 hours	Bacteria	1200 mg/l

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**SECTION 12: Ecological information**

**Conclusion/Summary** : No additional information.

**12.2 Persistence and degradability**

Product/ingredient name	Test	Period	Result
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	ISO ISO 7827, 1984 - Evaluation in an aqueous medium of the ultimate aerobic biodegradability of organic compounds	28 days	100 %
N-butyl acetate	-	28 days	98 %

**Conclusion/Summary** : No additional information.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	-	-	Readily
N-butyl acetate	-	-	Readily

**12.3 Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	0.5	-	low
N-butyl acetate	-	4 to 14	low

**12.4 Mobility in soil**

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

**Mobility** : Not available.

**12.5 Results of PBT and vPvB assessment**

Not applicable.

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

**12.7 Other ecological information**

**SECTION 13: Disposal considerations**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**13.1 Waste treatment methods**

Product

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

**Hazardous waste** : Yes.

European waste catalogue (EWC)

Waste code	Waste designation
07 02 08*	other still bottoms and reaction residues

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**SECTION 13: Disposal considerations**

**Packaging**

**Methods of disposal** : The generation of waste should be avoided or minimised 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 spill material and runoff and contact with soil, waterways, drains and sewers.

**SECTION 14: Transport information**

	14.1 UN number	14.2 UN proper shipping name
<b>ADR/RID</b>	Not regulated.	-
<b>IMDG</b>	Not regulated.	-
<b>IATA</b>	Not regulated.	-

	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards	14.6 Special precautions for user	Additional information
<b>ADR/RID</b>	-	-	No.	<b>Transport within user's premises:</b> 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.	-
<b>IMDG</b>	-	-	No.	<b>Transport within user's premises:</b> 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.	-

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**SECTION 14: Transport information**

<b>IATA</b>	-	-	No.	<b>Transport within user's premises:</b> 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.	-
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**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** : Not applicable.

**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)**

This product is compliant with the REACH Regulation EC 1907/2006. Huntsman has pre-registered and is registering all of the substances that it manufactures in or imports into the European Economic Area (EEA) that are subject to Title II of the REACH Regulation.

**Annex XIV - List of substances subject to authorisation**

**Annex XIV**

None of the components are listed.

**Substances of very high concern**

None of the components are listed.

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

**Other EU regulations**

- Europe inventory** : All components are listed or exempted.
- Black List Chemicals** : Not listed
- Priority List Chemicals** : Not listed
- Integrated pollution prevention and control list (IPPC) - Air** : Not listed
- Integrated pollution prevention and control list (IPPC) - Water** : Not listed

**National regulations**

- Australia inventory (AICS)** : All components are listed or exempted.
- Canada inventory** :
- China inventory (IECSC)** : All components are listed or exempted.
- Japan inventory** : Not determined.

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**SECTION 15: Regulatory information**

- Korea inventory (KECI)** : All components are listed or exempted.
- New Zealand Inventory of Chemicals (NZIoC)** : Not determined.
- Philippines inventory (PICCS)** :
- United States inventory (TSCA 8b)** : All components are listed or exempted.
- Chemical Weapons Convention List Schedule I Chemicals** : Not listed
- Chemical Weapons Convention List Schedule II Chemicals** : Not listed
- Chemical Weapons Convention List Schedule III Chemicals** : Not listed

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

**SECTION 16: Other information**

✔ Indicates information that has changed from previously issued version.

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

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

Classification	Justification
Skin Sens. 1, H317	Expert judgment
Aquatic Chronic 3, H412	Expert judgment

- Full text of abbreviated H statements** :
- H226 Flammable liquid and vapour.
  - H302 Harmful if swallowed.
  - H311 Toxic in contact with skin.
  - H314 Causes severe skin burns and eye damage.
  - H317 May cause an allergic skin reaction.
  - H318 Causes serious eye damage.
  - H332 Harmful if inhaled.
  - H336 May cause drowsiness or dizziness. (Narcotic effects)
  - (Narcotic effects)
  - H411 Toxic to aquatic life with long lasting effects.
  - H412 Harmful to aquatic life with long lasting effects.

- Full text of classifications [CLP/GHS]** :
- Acute Tox. 3, H311 ACUTE TOXICITY (dermal) - Category 3
  - Acute Tox. 4, H302 ACUTE TOXICITY (oral) - Category 4
  - Acute Tox. 4, H332 ACUTE TOXICITY (inhalation) - Category 4
  - Aquatic Chronic 2, H411 LONG-TERM AQUATIC HAZARD - Category 2
  - Aquatic Chronic 3, H412 LONG-TERM AQUATIC HAZARD - Category 3
  - Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
  - Flam. Liq. 3, H226 FLAMMABLE LIQUIDS - Category 3
  - Skin Corr. 1A, H314 SKIN CORROSION/IRRITATION - Category 1A
  - Skin Corr. 1B, H314 SKIN CORROSION/IRRITATION - Category 1B
  - Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1
  - Skin Sens. 1B, H317 SKIN SENSITIZATION - Category 1B

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**SECTION 16: Other information**

	STOT SE 3, H336 (Narcotic effects)	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
<b>Full text of abbreviated R phrases</b>	: R10- Flammable. R22- Harmful if swallowed. R20/22- Harmful by inhalation and if swallowed. R21/22- Harmful in contact with skin and if swallowed. R34- Causes burns. R35- Causes severe burns. R43- May cause sensitisation by skin contact. R66- Repeated exposure may cause skin dryness or cracking. R67- Vapours may cause drowsiness and dizziness. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.	
<b>Full text of classifications [DSD/DPD]</b>	: C - Corrosive Xn - Harmful N - Dangerous for the environment	
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