

# ALEC TIRANTI LIMITED

TOOLS, MATERIALS & EQUIPMENT FOR MODELLING, CARVING, SCULPTURE

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## Material Safety Data Sheet

### ARALDITE 2020 Part A

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

##### 1.1 Product identifier

Product Name: Araldite 2020

Product Code: 00052144

Product Description: not available

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

Product use: component for adhesive applications

1.3 Details of the supplier of safety data sheets supplier

Supplier: Huntsman Advanced materials (Europe) BVBA

Everslaan45

3078 Everberg / Belgium

Tel: +41 61 299 20 41

Fax: +41 61 299 20 40

Email address of person responsible for this sds

[Global\\_product\\_EHS\\_AdMat@huntsman.com](mailto:Global_product_EHS_AdMat@huntsman.com)

E-mail address to request full REACH registration number upon EU member State Authority request  
:REACH\_Registration\_Nr\_AM@huntsman.com

1.4 Emergency telephone number

Supplier: EUROPE: +32 35 75 1234

France ORFILA: +33(0)145425959

ASIA: +65 6336-6011

China: +86 20 39377888

Australia: 1800 786 152

New Zealand: 0800 767 437

USA: +1/800/424.9300

#### 2 Hazards identification

##### 2.1 Classification of the substance or mixture

Product definition : Mixture

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

Acute tox. 4 H332

Skin Irrit 2 H315

Eye Dam. 1 H318

Skin Sens 1 H317

Aquatic Chronic 2 H411

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.

**Classification** Xn; R20/21/22

C; R34

R43

N; R51/53

**Human health hazards :** Harmful by inhalation, in contact with skin and if swallowed. Causes burns.  
May cause sensitisation by skin contact.

**Environmental hazards :** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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



**Hazard Pictograms:**

**Signal Word:**

**Hazard Statements:**

Corrosive, Dangerous for the environment  
 Harmful If inhaled  
 Causes serious eye damage  
 Causes skin irritation  
 May cause an allergic skin reaction  
 Toxic to aquatic life with long lasting effects

**Precautionary statements:**

**General:**

**Prevention:**

**Response:**

**Storage**

**Disposal:**

**Hazardous Ingredients:**

**Supplemental Label elements:**

**Supplemental Label Elements:**

Not applicable  
 wear protective gloves: > 8 hours breakthrough time: ethyl vinyl alcohol laminate (eval), butyl rubber. Wear protective eye or face protection. Avoid release to the environment  
 If inhaled remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES immediately call a poison centre or physician.  
 Not applicable  
 dispose of contents and container in accordance with all local, regional, national and international regulations  
 reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700) butanedioldiglycidyl ether  
 Not applicable.  
 Contains epoxy constituents. See information supplied by the manufacturer.

**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: Not available

## 3 Composition/information on ingredients

### 3.2 Mixtures

Name	Identifiers	%			Type
reaction product: bisphenol A- (epichlorhydrin); epoxy resin (number average molecular weight <700)	REACH #: 01- 2119456619-26 CAS: 25068-38-6 EC: 500-033-5	30-60	Xi; R36/38 R43 N; R51/53	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411	[1]
1,4-Bis(2,3- epoxypropoxy)butane	CAS: 2425-79-8 EC: 219-371-7 RRN:01- 2119494060-45	30-60	Xn; R20/21 Xi; R36/38 R43 R52/53	Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 3, H412	[1]
			See Section 16 for the full text of the Rphrases declared above.	See Section 16 f or the full text of the H statements declared above	[1]

					[1]
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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.

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

**4 FIRST AID MEASURES**

**4.1 Description of First Aid measures**

Eye Contact:	Get medical attention immediately. 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. If eye irritation persists, consult a doctor.
Inhalation:	Get medical attention immediately. 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.
Skin Contact:	Get medical attention immediately. Call a poison centre 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 Centre. 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. 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**

<b>Eye Contact:</b>	Causes serious eye damage
<b>Inhalation:</b>	Harmful by inhalation. May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.
<b>Skin Contact:</b>	Causes skin irritation may cause an allergic skin reaction
<b>Ingestion:</b>	harmful if swallowed. May cause burns to mouth, throat and stomach.

**Over-exposure signs/symptoms**

<b>Eye Contact:</b>	Adverse symptoms may include the following: pain watering Redness
<b>Inhalation:</b>	No specific data
<b>Skin Contact:</b>	Adverse symptoms may include the following Pain or irritation Redness

**Ingestion:** Blistering may occur  
Adverse symptoms may include the following:  
stomach pains

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

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

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

### 5 FIRE FIGHTING MEASURES

#### 5.1 Extinguishing media

**Suitable Extinguishing Media:** Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable Extinguishing media:** None known

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

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

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

#### 5.3 Advice for firefighters

**Special 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.

### 6 ACCIDENTAL RELEASE MEASURES

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

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

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

#### 6.2 Environmental Precautions:

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

#### 6.3 Methods and materials for containment and cleaning up

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

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

a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

#### 6.4 Reference to other Sections

See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

### 7 HANDLING & 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 breathe vapour or mist. Do not ingest. Avoid release to the environment. Refer to special instructions/safety data sheet. 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 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 unlabeled containers. Use appropriate containment to avoid environmental contamination.

##### Storage hazard class

**Huntsman Advanced Materials** : Storage class 10, Environmentally hazardous liquids

#### 7.3 Specific end use(s)

**Recommendations:** not available

**Industrial sector specific solutions:** not available

### 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:** no exposure limit value is known

**Recommended monitoring procedures:** If this product contains ingredients with exposure limits, personal, work place 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 (Work place atmospheres -Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Work place 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
reaction product:	DNEL	Short term	8.33 mg/ kg	Workers	Systemic

bisphenol A(epichlorhydrin); epoxy resin (number average molecular weight < 700)	DNEL	exposure	bw/day		
	DNEL	Short term inhalation	12.25 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Dermal	8.33mg/ kg bw/day	Workers	Systemic
	DNEL	Long term inhalation	12.25 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Short term dermal	3.571 mg/ kg bw/day	Consumers	Systemic
	DNEL	Short term oral	0.75 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term dermal	3.571 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term oral	0.75 mg/m <sup>3</sup>	Consumers	Systemic

**Predicted effect concentrations:**

Product / ingredient name	Type	Compartment detail	value	Method detail
reaction product: bisphenol A(epichlorhydrin); epoxy resin (number average molecular weight < 700)	PNEC	Fresh water	0.006 mg/l	Assessment factors
	PNEC	Marine	0.0006 mg/l	Assessment factors
	PNEC	PNEC intermittent	0.018 mg/l	Assessment factors
	PNEC	Fresh water sediment	0.996 mg/kg	Equilibrium partitioning
	PNEC	Soil	0.196 mg/kg	Equilibrium partitioning
	PNEC	Sewage treatment plant	10 mg/l	Assessment factors
	PNEC	Secondary poisoning	11 mg/kg	-

**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. In 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, 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

**Material of gloves for long term application (BTT>480min):**

butyl rubber, Ethyl Vinyl Alcohol Laminate (EVAL)

**Material of gloves for nitrile rubber short term/splash application (10min<BTT<480min):**

nitrile rubber, neoprene

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.qisbau.de](http://www.qisbau.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. Organic Vapour (type A) and particulate filter.
- 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.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid	
Colour:	Clear	
Odour:	slight	
Odour Threshold:	Not available	
pH:	7 (conc. (%w/w):50%)	
Melting point/freezing point:	Not available	
Boiling Point:	200°C	
Flash Point (°C):	Closed Cup > 140°C	Method: DIN 51758 EN22719 (Pensky-Martens Closed Cup)
Evaporation rate:	Not available	
Flammability:	Not available	
Burning Time:	Not available	
Burning Rate:	Not available	
Upper/lower flammability limits:	Not available	
Vapour Pressure:	<0.00001 kPa [room temperature]	
Vapour Density:	Not available	
Relative density:	Not available	
Water solubility:	Practically insoluble	
Partition coefficient n-octanol/water:	Not available	
Auto igniton temperature:	Not available	
Decomposition temperature:	>200°C	
Viscosity:	dynamic (25°C): 150 mPa.s	
	Kinematic: not available	
	Kinematic 40°C: not available	
Explosive properties:	Not available	
Oxidising properties:	Not available	

### 9.2 Other information

Density: 1.12 g/m<sup>3</sup> (20°C)

## 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** This 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 oxidizing 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

## 11 TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute Toxicity

Product/ingredient name	Endpoint	Species	Result	Exposure
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	LC0 Inhalation Vapour	Rat – Male	0.00001ppm	5 hours

1,4-Bis(2,3-epoxypropoxy)butane	LD50 Dermal	Rat – Male Female	>2000 mg/kg	-
	LD50 Oral	Rat – Female	>2000 mg/kg	-
	LD50 Dermal	Rat - Male, Female	>2150 mg/kg	-
	LD50 Oral	Rat - Male, Female	1163 mg/kg	

**Conclusion/summary:** No additional information

**Acute toxicity estimates:**

Route	ATE value
Oral	2596mg/kg
Dermal	2455.4 mg/kg
Inhalation (dusts and mists)	3.348 mg/l

#### Irritation/corrosion

Product/ingredient name	Test	Species	Route of exposure	of	result
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)  1,4-Bis(2,3-epoxypropoxy)butane	OECD 404 Acute dermal irritation / corrosion	rabbit	skin		Mild irritant
	OECD 405 Acute eye irritation / corrosion	Rabbit	eye		Mild irritant
	OECD 405 Acute dermal irritation / corrosion	Rabbit	Skin		non-irritant
	OECD 405 Acute Eye irritation / corrosion	Rabbit	Eyes		severe irritant

**Conclusion/summary:**

**Skin:**

not available

reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)

Irritating to skin

1,4-Bis(2,3-epoxypropoxy)butane based on the human occupation exposure data, this substance is considered as irritating to skin

**Eyes:**

reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)

Irritating to eyes

**Respiratory:**

1,4-Bis(2,3-epoxypropoxy)butane severely irritating to eyes  
No additional information

#### Sensitiser

Product/ingredient name	Test	Route of exposure	Species	Result
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700) butanedioldiglycidyl ether  1,4-Bis(2,3-epoxypropoxy)butane	OECD 429 Skin Sensitisation: Local Lymph Node Assay	Skin	Mouse	Sensitizing
	OECD 406 Skin Sensitization	Skin	Guinea pig	Sensitizing

**Conclusion/summary:**

**Skin:**

No additional Information

**Respiratory:**

No additional Information

#### Mutagenicity

Product/ingredient name	Test	Result
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	OECD 471 Bacterial Reverse Mutation Test	Positive
	OECD 476 In vitro mammalian Cell Gene Mutation Test	Positive
	OECD 478 Genetic Toxicology:	negative



1,4-Bis(2,3-epoxypropoxy)butane	Rodent Dominant Lethal Test: EPA OPPTS	negative
	OECD 471 Bacterial Reverse Mutation Test	positive
	OECD 473 In vitro Mammalian Chromosomal Aberration Test	positive
	OECD 474 Mammalian Erythrocyte Micronucleus Test	negative

**Conclusion/summary:** not additional information

### Carcinogenicity

Product/ingredient name	test	Species	Exposure	Result	Route of exposure	Target organs
reaction product: bisphenol A- (epichlorhydrin); epoxy resin (number average molecular weight < 700)	OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies	Rat	2 years; 7 days per week	Negative	Oral	-
	OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies	Rat	2 years; 5 days per week	Negative	Dermal	-
	OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies	Mouse	2 years; 3 days per week	negative	dermal	-

**Conclusion/summary:** not additional information

### Reproductive toxicity

Product/ingredient name	Test	Species	Result/result type	Target organs
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	OECD 416 Two- Generation Reproduction Toxicity Stud	Rat	Oral:540mg/kg NOEL:	-

### Taratoxicity

Product/ingredient name	test	species	Result/ type
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	OECD 414 Prenatal Developmental Toxicity Study	Rat – Female	>540 mg/kg NOEL:
	EPA CFR OECD 414 Prenatal Developmental Toxicity Study	Rabbit- Female Rabbit- Female	>300 ,g/kg NOEL: 180 mg/kg NOAEL:

**Conclusion/summary:** not additional information

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

**Specific target organ toxicity (repeated exposure)** Not available

**Aspiration Hazard** Not available

### Potential acute health effects

**Inhalation :** Harmful by inhalation. May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.

**Ingestion :** May cause burns to mouth, throat and stomach.

**Skin contact :** Causes skin irritation. May cause an allergic skin reaction

**Eye contact :** Causes serious eye damage

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

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

**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
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)  1,4-Bis(2,3- epoxypropoxy)butane	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	NOAEL	50 mg/kg	-
	OECD 411 Subchronic Dermal Toxicity: 90- day Study	NOEL :	10mg/kg	-
	OECD 411 Subchronic Dermal Toxicity: 90- day Study	NOAEL	100mg/kg	-
	OECD 407 Repeated Dose 28-day Oral Toxicity Study in Rodents	NOAEL	200mg/kg	-

**Conclusion/Summary :** Not available.

**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

**12 ECOLOGICAL INFORMATION**

**12.1 Toxicity**

Product/ingredient Name	Test	Endpoint	Exposure	Species	Result
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)  1,4-Bis(2,3- epoxypropoxy)butane	EPA CFR	Acute EC50	72 hours Static	Algae	9.4 mg/L
	OECD 202 Daphnia sp. Acute Immobilization Test	Acute EC50	48 hours Static	Daphnia	1.7 mg/L
	-	Acute IC50	3 hours Static	Bacteria	>100 mg/L
	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours Static	Fish	1.5 mg/L
	OECD 211 Daphnia Magna Reproduction Test	Chronic NOEC	21 days Semistatic	Daphnia	0.3 mg/L
	OECD 202 Daphnia sp. Acute Immobilization Test	Acute EC50	24 hours Static	Daphnia	75 mg/L
	OECD 201 Alga, Growth Inhibition Test	Acute EL50	72 hours Static	Algae	>160 mg/L
	OECD 209 Activated Sludge, Respiration Inhibition Test	Acute IC50	3 hours Static	Bacteria	>100 mg/L

	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours Static	Fish	24 mg/L
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**Conclusion / summary:** No additional Information

### 12.2 Persistence and degradability

Product Ingredient name	test	Period	Result
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	OECD Derived from OECD 301F (Biodegradation Test)	28 days	5%
1,4-Bis(2,3-epoxypropoxy)butane	OECD 301F Ready Biodegradability - Manometric Respirometry Test	28 days	43%

**Conclusion / summary:** reaction product: bisphenol: A-(epichlorhydrin); epoxy resin (number average molecular weight < 700) Not readily biodegradable

Product Ingredient name	Aquatic Half Life	Photolysis	Biodegradability
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	Fresh water 4.83 days Fresh water 3.58 days Fresh water 7.1 days	-	Not readily
1,4-Bis(2,3-epoxypropoxy)butane	-	-	Not readily

### 12.3 Bioaccumulative potential

Product Ingredient name	LogPow	Photolysis	Biodegradability
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	3.242	31	Low
1,4-Bis(2,3-epoxypropoxy)butane	-0.269	-	low

### 12.4 Mobility in soil

**Soil/water partition Coefficient (Koc):** 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

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

#### **European Waste catalogue (EWC)**

**Hazardous waste:** yes  
**Waste code:** 07 02 08\*  
**Waste designation:** other still bottoms and reactions residues

#### 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 split material and run-off and contact with soil, waterways drains and sewers.

#### 14 TRANSPORT INFORMATION

	14.1 UN Number	14.2 UN Proper shipping Name
ADR/RID	UN3082	Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A epoxy resin)
IMDG	UN3082	Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A epoxy resin) Marine pollutant
IATA	UN3082	Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A epoxy resin)

	14.3 Transport hazard class	14.4 Packing group	14.5 Environmental hazard	14.6 Special precautions for user	Additional information
ADR/RID	9	III	Yes	<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.	The environmentally hazardous substance mark is not required when transported in <5l or <5kg <b>Hazard identification Number:</b> 90 <b>Special provisions:</b> 274 335 601 <b>Tunnel code:</b> E
IMDG	9	III	Yes	<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.	The marine pollutant mark is not required when transported in sizes of <5l or <5kg <b>Emergency schedules (EmS):</b> F-A S-F
IATA	9	III	yes	<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.	The environmentally hazardous substance mark is not required when transported in <5l or <5kg <b>Passenger and cargo aircraft:</b> quantity limitation 450L Packaging instructions: 964 <b>Cargo Aircraft Only:</b> Quantity limitation 450l Packaging instructions 964

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code: not applicable

#### 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 might manufacture 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 authorization

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**

**References :** The provision of Safety Data Sheets comes under Regulation 6 of CHIP (CHIP is the recognised abbreviation for the Chemicals Hazard Information and Packaging Regulations). This is an addition to the Health and Safety at Work Act 1974.

**Australia Inventory (AICS):** All components are listed or exempted  
**Canada inventory:** All components are listed or exempted  
**China inventory (IECSC)** All components are listed or exempted  
**Japan Inventory:** All components are listed or exempted  
**Korea inventory (KECI):** All components are listed or exempted  
**New Zealand inventory of chemicals (NZIoC):** All components are listed or exempted  
**Philippines inventory (PICCS)** All components are listed or exempted  
**United States inventory (TSCA 8b)** All components are listed or exempted

**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

**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  
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]**

<b>Classification</b>	<b>Justification</b>
Acute Tox. 4, H332 Skin Irrit. 2., H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 2, H411	Calculation Method Calculation Method Calculation Method Calculation Method Calculation Method

**Full text of abbreviated H statements** H302 Harmful if swallowed.  
H312 Harmful in contact with skin.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.

H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
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. 4, H302 ACUTE TOXICITY: ORAL - Category 4  
Acute Tox. 4, H312 ACUTE TOXICITY: SKIN - Category 4  
Acute Tox. 4, H332 ACUTE TOXICITY: INHALATION - Category 4  
Aquatic Chronic 2, H411 AQUATIC TOXICITY (CHRONIC) - Category 2  
Aquatic Chronic 3, H412 AQUATIC TOXICITY (CHRONIC) - Category 3  
Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1  
Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2  
Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2  
Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1

**Full text of abbreviated R phrases:**

R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.  
R41 – risk of serious damage to eyes  
R38- Irritating to skin  
R36/38- Irritating to eyes and skin.  
R43- May cause sensitisation by skin contact.  
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.

**Full text of classifications :[DSD/DPD]**

Xn - Harmful  
Xi - Irritant  
N - Dangerous for the environment

**MSDS No.**  
**Date of Printing**  
**Date of Issue/date of revision**  
**Date of previous issue:**  
**Version:**  
**Notice to reader**

00052144  
5/28/2015  
5/28/2015  
1/20/2015  
4

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*EXPRESS OR OTHERWISE.*

*IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.*

*THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.*

*Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.*

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# ALEC TIRANTI LIMITED

TOOLS, MATERIALS & EQUIPMENT FOR MODELLING, CARVING, SCULPTURE

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Thatcham, Berks RG19 4ER  
Tel: 0845 123 2100 Fax: 0845 123 2101



London Shop: 27 Warren Street  
London W1T 5NB  
Tel & Fax: 020 7380 0808

## Material Safety Data Sheet

### ARALDITE 2020 Part B

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

##### 1.1 Product identifier

Product Name: Araldite 2020

Product Code: 00047541

Product Description: not available

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

Product use: component for adhesive applications

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

Supplier: Huntsman Advanced materials (Europe) BVBA

Everslaan45

3078 Everberg / Belgium

Tel: +41 61 299 20 41

Fax: +41 61 299 20 40

Email address of person responsible for this sds

[Global\\_product\\_EHS\\_AdMat@huntsman.com](mailto:Global_product_EHS_AdMat@huntsman.com)

E-mail address to request full REACH registration number upon EU member State Authority request  
:REACH\_Registration\_Nr\_AM@huntsman.com

##### 1.4 Emergency telephone number

Supplier: EUROPE: +32 35 75 1234

France ORFILA: +33(0)145425959

ASIA: +65 6336-6011

China: +86 20 39377888

Australia: 1800 786 152

New Zealand: 0800 767 437

USA: +1/800/424.9300

#### 2 Hazards identification

##### 2.1 Classification of the substance or mixture

**Product definition :** Mixture

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

Acute tox. 4 H302

Acute tox. 4 H312

Skin Corr. 1B H314

Eye Dam. 1 H318

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.

**Classification** Xn; R21/22

C; R34

R43

N; R52/53

**Human health hazards :** Harmful by inhalation, in contact with skin and if swallowed. Causes burns.  
May cause sensitisation by skin contact.

**Environmental hazards :** Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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



**Hazard Pictograms:**

**Signal Word:**

**Hazard Statements:**

Danger

Harmful If inhaled

Causes severe skin burns and eye damage

Causes skin irritation

May cause an allergic skin reaction

Toxic to aquatic life with long lasting effects

**Precautionary statements:**

**General:**

Not applicable

**Prevention:**

wear protective gloves: > 8 hours breakthrough time: ethyl vinyl alcohol laminate (eval), butyl rubber. Wear protective eye or face protection. Avoid release to the environment

**Response:**

If inhaled remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison centre 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 centre or physician.

**Storage**

Store locked Up

**Disposal:**

dispose of contents and container in accordance with all local, regional, national and international regulations

**Hazardous Ingredients:**

sophorone diamine  
trimethylhexamethylenediamine

**Supplemental Label elements:**

Not applicable.

**Supplemental Label Elements:**

.

**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: Not available

**3 Composition/information on ingredients**

**3.2 Mixtures**

Name	Identifiers	%		Type	
3-aminomethyl-3,5,5-trimethylcyclohexylamine	CAS: 2855-13-2 EC: 220-666-8	30-60	Xn; R21/22 C; R34 R43 N; R52/53	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412	[1]
Trimethylhexane-1,6-diamine	CAS: 25620-58-0 EC: 247-134-8	13.30	Xn; R22 C; R34 R43 R52/53	Acute Tox. 4, H302 Skin Corr. 1C, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412	[1]
			See Section 16 for the full text of the Rphrases declared above.	See Section 16 f or the full text of the H statements declared above	[1]



					[1]
--	--	--	--	--	-----

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

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

## 4 FIRST AID MEASURES

### 4.1 Description of First Aid measures

Eye Contact:	Get medical attention immediately. 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. If eye irritation persists, consult a doctor.
Inhalation:	Get medical attention immediately. 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 centre 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 Centre. 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. 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

<b>Eye Contact:</b>	Causes serious eye damage
<b>Inhalation:</b>	Harmful by inhalation. May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.
<b>Skin Contact:</b>	Causes skin irritation may cause an allergic skin reaction
<b>Ingestion:</b>	harmful if swallowed. May cause burns to mouth, throat and stomach.

#### Over-exposure signs/symptoms

<b>Eye Contact:</b>	Adverse symptoms may include the following: pain watering Redness
<b>Inhalation:</b>	No specific data
<b>Skin Contact:</b>	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:** Symptomatic treatment and supportive therapy as indicated. Following severe exposure the patient should be kept under medical review for at least 48 hours.

## 5 FIRE FIGHTING 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 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.

## 6 ACCIDENTAL RELEASE MEASURES

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

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

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

### 6.2 Environmental Precautions:

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

### 6.3 Methods and materials for containment and cleaning up

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

**Large Spill:** Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or

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

**6.4 Reference to other Sections**

See Section 1 for emergency contact information.  
 See Section 8 for information on appropriate personal protective equipment.  
 See Section 13 for additional waste treatment information.

**7 HANDLING & 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 breathe vapour or mist. Do not ingest. Avoid release to the environment. f during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse

container. **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 unlabeled containers. Use appropriate containment to avoid environmental contamination.

**Storage hazard class**

**Huntsman Advanced Materials** : Storage class 8, Corrosive substances

**7.3 Specific end use(s)**

**Recommendations:** not available

**Industrial sector specific solutions:** not available

**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:** no exposure limit value is known

**Recommended monitoring procedures:** If this product contains ingredients with exposure limits, personal, work place 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 (Work place atmospheres -Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Work place 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
---------------------------	------	----------	-------	------------	---------

3-aminomethyl-3,5,5-trimethylcyclohexylamine	DNEL	Short term inhalation	20.1	Workers	Systemic
	DNEL	Short term inhalation	20.1	Workers	Systemic
	DNEL	Long term oral	0.526	Consumers	Systemic

**Predicted effect concentrations:**

Product / ingredient name	Type	Compartment detail	value	Method detail
3-aminomethyl-3,5,5-trimethylcyclohexylamine	PNEC	Fresh water	0.006	Assessment factors
	PNEC	Marine	0.0006	Assessment factors
	PNEC	PNEC intermittent	0.23	Assessment factors
	PNEC	Sewage treatment plant	3.18	Assessment factors
	PNEC	Fresh water sediment	5.784	Assessment factors
	PNEC	Marine Water sediment	0.578	Assessment factors
	PNEC	Soil	1.121	Assessment factors
		Secondary poisoning		

**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. In 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, 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

**Material of gloves for long term application**

**(BTT>480min):**

butyl rubber, Ethyl Vinyl Alcohol Laminate (EVAL)

**Material of gloves for nitrile rubber short term/splash application**

**(10min<BTT<480min):**

nitrile rubber

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. Organic Vapour (type A) and particulate filter.

**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.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Colour:	Clear
Odour:	Amine Like
Odour Threshold:	Not available
pH:	Not available
Melting point/freezing point:	Not available
Boiling Point:	200°C
Flash Point (°C):	Closed Cup > 120°C      Method: DIN 51758 EN22719 (Pensky-Martens Closed Cup)
Evaporation rate:	Not available
Flammability:	Not available
Burning Time:	Not available
Burning Rate:	Not available
Upper/lower flammability limits:	Not available
Vapour Pressure:	<0.006 kPa [room temperature]
Vapour Density:	Not available
Relative density:	Not available
Water solubility:	Partially soluble
Partition coefficient n-octanol/water:	Not available
Auto igniton temperature:	Not available
Decomposition temperature:	>200°C
Viscosity:	dynamic (25°C): 150 mPa.s Kinematic: not available Kinematic 40°C: not available
Explosive properties:	Not available
Oxidising properties:	Not available

### 9.2 Other information

Density : 0.95 g/cm<sup>3</sup> [25°C (77°F)]

## 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** This 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 oxidizing 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 , nitrogen oxides. burning produces obnoxious and toxic fumes

## 11 TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute Toxicity

Product/ingredient name	Endpoint	Species	Result	Exposure
3-aminomethyl-3,5,5-trimethylcyclohexylamine	LD50 Oral	Rat – Male	1030 mg/kg	
Trimethylhexane-1,6-diamine	LD50 Oral	Rat	910 mg/kg	

**Conclusion/summary:** No additional information

#### Acute toxicity estimates:

Route	ATE value
Oral	979.1 mg/kg
Dermal	1815 mg/kg

#### Irritation/corrosion

Product/ingredient name	Test	Species	Route of exposure	result
3-aminomethyl-3,5,5-trimethylcyclohexylamine	OECD 405 Acute Eye Irritation/Corrosion	rabbit	skin	Corrosive
Trimethylhexane-1,6-diamine	Unknown guidelines	Rabbit	eye	Corrosive
	Unknown guidelines	Mouse	Skin	Corrosive
	Unknown guidelines	Rabbit	Eyes	irritant

	OECD 405 Acute Eye Irritation/Corrosion	Rabbit		Corrosive
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**Conclusion/summary:** not available

**Skin:** 3-aminomethyl-3,5,5-trimethylcyclohexylamine Corrosive to the skin.  
Trimethylhexane-1,6-diamine Corrosive to the skin.  
1,4-Bis(2,3-epoxypropoxy)butane based on the human occupation exposure data, this substance is considered as irritating to skin

**Eyes:** 3-aminomethyl-3,5,5-trimethylcyclohexylamine Corrosive to the skin.  
Trimethylhexane-1,6-diamine Corrosive to the skin.

**Respiratory:** No additional information

### Sensitiser

Product/ingredient name	Test	Route of exposure	Species	Result
3-aminomethyl-3,5,5-trimethylcyclohexylamine	OECD 406 Skin Sensitisation:	Skin	Guinea Pig	Sensitizing
Trimethylhexane-1,6-diamine	OECD 406 Skin Sensitization	Skin	Guinea pig	Sensitizing

**Conclusion/summary:**

**Skin:** No additional Information

**Respiratory:** No additional Information

### Mutagenicity

**Conclusion/summary:** 3-aminomethyl-3,5,5-trimethylcyclohexylamine  
Not mutagenic in a standard battery of genetic toxicological tests.  
Trimethylhexane-1,6-diamine  
Not mutagenic in a standard battery of genetic toxicological tests.

### Carcinogenicity

**Conclusion/summary:** not additional information

### Reproductive toxicity

Product/ingredient name	Test	Species	Result/result type	Target organs
Trimethylhexane-1,6-diamine	OECD 416 Two-Generation Reproduction Toxicity Stud	Rat	Oral:10mg/kg NOEL:	-

### Taratogenicity

Product/ingredient name	test	species	Result/ type
3-aminomethyl-3,5,5-trimethylcyclohexylamine	OECD 414 Prenatal Developmental Toxicity Study	Rat – Female	>250 mg/kg NOEL:
Trimethylhexane-1,6-diamine		Rabbit- Female	>250000 ppm NOAEL

**Conclusion/summary:** not additional information

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

**Specific target organ toxicity (repeated exposure)** Not available

**Aspiration Hazard** Not available

**Potential acute health effects**

- Inhalation :** May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Ingestion :** May cause burns to mouth, throat and stomach.
- Skin contact :** Causes severe burns. Harmful in contact with skin. May cause an allergic skin reaction.
- Eye contact :** Causes serious eye damage

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

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

**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
3-aminomethyl-3,5,5-trimethylcyclohexylamine	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	NOAEL	60 mg/kg	Kidneys
Trimethylhexane-1,6-diamine		NOAEL	10mg/kg	

**Conclusion/Summary :** Not available.

- 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

**12 ECOLOGICAL INFORMATION****12.1 Toxicity**

Product/ingredient Name	Test	Endpoint	Exposure	Species	Result
3-aminomethyl-3,5,5-trimethylcyclohexylamine	Measured	Acute EC50	18 hours	bacteria	1120mg/l
	EU EC C.3 Algal Inhibition test	Acute EC50	72 hours Static	Algae	37 mg/L
	OECD 202 Daphnia sp. Acute immobilization test	Acute EC50	48 hours Static	Daphnia	23 mg/L
	EU EC C.1 Acute toxicity test for fish	Acute LC50	96 hours Static	Fish	110 mg/L
Trimethylhexane-1,6-diamine	DIN	Acute EgC50	72 hours	Algae	29.5 mg/L
	DIN	Acute IC50	17 hours	Bacteria	89 mg/l

**Conclusion / summary:** No additional Information**12.2 Persistence and degradability**

Product Ingredient name	test	Peroid	Result
3-aminomethyl-3,5,5-trimethylcyclohexylamine	EU EC C.4-A Biodegradation: Determination of the "Ready" Biodegradability: Dissolved Organic Carbon (DOC) Die-Away Test	28 days	8%
Trimethylhexane-1,6-diamine	EU	28 days	7%

**Conclusion / summary:**

Product Ingredient name	Aquatic Half Life	Photolysis	Biodegradability
3-aminomethyl-3,5,5-trimethylcyclohexylamine	-	-	Not readily
Trimethylhexane-1,6-diamine	-	-	Not readily

### 12.3 Bioaccumulative potential

Product Ingredient name	LogPow	BCF	Potential
3-aminomethyl-3,5,5-trimethylcyclohexylamine	0.99	31	Low
Trimethylhexane-1,6-diamine	0.77	-	low

### 12.4 Mobility in soil

**Soil/water partition Coefficient (Koc)** 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

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

#### European Waste catalogue (EWC)

**Hazardous waste:** yes  
**Waste code:** 07 02 04\*  
**Waste designation:** other organic solvents, washing liquids and mother liquors

#### 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 split material and run-off and contact with soil, waterways drains and sewers.

## 14 TRANSPORT INFORMATION

	14.1 UN Number	14.2 UN Proper shipping Name
<b>ADR/RID</b>	UN2289	ISOPHORONEDIAMINE SOLUTION
<b>IMDG</b>	UN2289	ISOPHORONEDIAMINE SOLUTION
<b>IATA</b>	UN2289	ISOPHORONEDIAMINE SOLUTION

	14.3 Transport	14.4 Packing	14.5 Environme	14.6 Special precautions for user	Additional informaiton



	hazard class	group	ntal hazard		
ADR/RID	8	III	no	<b>Transport within</b> always transportin 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>Hazard identification</b> <b>Number:</b> 80 <b>Tunnel code:</b> E
IMDG	9	III	Yes	<b>Transport within</b> always transportin 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>Emergency schedules (EmS):</b> F-A S-B
IATA	9	III	yes	<b>Transport within</b> always transportin 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>Passenger and cargo aircraft:</b> quantitiy limitation 5L Packaging instructions: 856 <b>Cargo Aircraft Only:</b> Quantity limitation 60l Packaging instructions 856

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code: not applicable

## 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 might manufactures 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 authorization

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

**References** : The provision of Safety Data Sheets comes under Regulation 6 of CHIP (CHIP is the recognised abbreviation for the Chemicals Hazard Information and Packaging Regulations). This is an addition to the Health and Safety at Work Act 1974.

**Australia Inventory (AICS):** All components are listed or exempted

**Canada inventory:** All components are listed or exempted

**China inventory (IECSC)** All components are listed or exempted

**Japan Inventory:** All components are listed or exempted

**Korea inventory (KECI):** All components are listed or exempted

**New Zealand inventory of chemicals (NZIoC):** All components are listed or exempted

**Philippines inventory (PICCS)** All components are listed or exempted

**United States inventory (TSCA 8b)** All components are listed or exempted

**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

## 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  
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
Acute Tox. 4, H302	Calculation Method
Acute Tox. 4 H312	Calculation Method
Skin Corr 1B, H315	Calculation Method
Eye Dam. 1, H318	Calculation Method
Skin Sens. 1, H317	Calculation Method
Aquatic Chronic 3, H412	Calculation Method

**Full text of abbreviated H 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.  
H318 Causes serious eye damage.  
H412 Harmful to aquatic life with long lasting effects.

**Full text of classifications[CLP/GHS]** Acute Tox. 4, H302 ACUTE TOXICITY: ORAL - Category 4  
Acute Tox. 4, H312 ACUTE TOXICITY: SKIN - Category 4  
Aquatic Chronic 3, H412 AQUATIC TOXICITY (CHRONIC) - Category 3  
Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1  
Skin Corr. 1B, H314 SKIN CORROSION/IRRITATION - Category 1B  
Skin Corr. 1C, H314 SKIN CORROSION/IRRITATION - Category 1C  
Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1

**Full text of abbreviated R phrases:** R22- Harmful if swallowed.  
R21/22- Harmful in contact with skin and if swallowed.  
R34- Causes burns.  
R43- May cause sensitisation by skin contact.  
R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Full text of classifications :[DSD/DPD]** C - Corrosive  
Xi - Irritant

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