

# SAFETY DATA SHEET



ARALDITE® CY 223

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

### 1.1 Product identifier

**Product name** : ARALDITE® CY 223  
**Registration number** : Not available.  
**Product code** : 00055702  
**Product description** :  
**Other means of identification** : Not available.

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

**Product use** : Component used for the manufacture of electrical insulation parts

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

**Supplier** : Huntsman Advanced Materials (Europe)BVBA  
Everslaan 45  
3078 Everberg / Belgium  
Tel.: +41 61 299 20 41  
Fax: +41 61 299 20 40

**e-mail address of person responsible for this SDS** : 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

**Telephone number** : EUROPE: +32 35 75 1234  
France ORFILA: +33(0)145425959  
ASIA: +65 6336-6011  
China: +86 20 39377888  
+86 532 83889090  
India: + 91 22 42 87 5333  
Australia: 1800 786 152  
New Zealand: 0800 767 437  
USA: +1/800/424.9300



## 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 Irrit. 2, H315  
Eye Dam. 1, H318  
Skin Sens. 1, H317  
Aquatic Chronic 2, H411

**Ingredients of unknown toxicity** :

**Ingredients of unknown ecotoxicity** :

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## SECTION 2: Hazards identification

### 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  
 Xi; R41, R38  
 R43  
 N; R51/53
- Human health hazards** : Harmful by inhalation, in contact with skin and if swallowed. Risk of serious damage to eyes. Irritating to skin. 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** : Danger

**Hazard statements** : Causes serious 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 Lamine (EVAL), butyl rubber. Wear eye or face protection. Avoid release to the environment.
- Response** : IF IN EYES: Rinse cautiously with water for several minutes. Immediately call a POISON CENTER or physician.
- Storage** : Not applicable.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazardous ingredients** : reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)  
 butanedioldiglycidyl ether
- Supplemental label elements** : Not applicable.
- Supplemental label elements** : 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** : None known.

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### SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	CAS: 25068-38-6 EC: 500-033-5 RRN: 01-2119456619-26	60-100	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	13-30	Xn; R20/21/22 Xi; R41, R38 R43  R52/53  <b>See Section 16 for the full text of the R-phrases declared above.</b>	Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332  Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412  <b>See Section 16 for the full text of the H statements declared above.</b>	[1]

Type

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

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

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

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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. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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

#### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : May cause burns to mouth, throat and stomach.

#### Over-exposure signs/symptoms

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

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

- Notes to physician** : 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.

## 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.

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## SECTION 5: Firefighting measures

### 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.

## 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 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 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 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.

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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 breathe vapour or mist. Do not ingest. Avoid release to the environment. If 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.
- 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. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

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

### 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

No exposure limit value known.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482

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

(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
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	DNEL	Short term Dermal	8.33 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	12.25 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Dermal	8.33 mg/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/kg bw/day	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	PNECintermittent	0.018 mg/l	Assessment Factors
	PNEC	Fresh water sediment	0.996 mg/kg	Equilibrium Partitioning
	PNEC	Marine water sediment	0.0996 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** : If user operations generate dust, fumes, gas, vapour or mist, 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.

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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: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Material of gloves for long term application (BTT>480min):** : Ethyl Vinyl Alcohol Laminate (EVAL), butyl rubber
- Material of gloves for short term/splash application (10min <BTT<480min):** : neoprene, nitrile rubber  
 (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** : mild
- Odour threshold** : Not available.
- pH** : 6.3 [Conc. (% w/w): 50%]
- Melting point/freezing point** : Not available.
- Initial boiling point and boiling range** : >200°C
- Flash point** : Closed cup: 160°C [DIN 51758 EN 22719 (Pensky-Martens Closed Cup)]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.

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## SECTION 9: Physical and chemical properties

**Burning time** : Not applicable.  
**Burning rate** : Not applicable.  
**Upper/lower flammability or explosive limits** : Not available.  
**Vapour pressure** : 0.0002 kPa [room temperature]  
**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): 400 - 600 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 to 1.16 g/cm<sup>3</sup> [25°C (77°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.

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## SECTION 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	0.00001 ppm	5 hours
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
1,4-Bis(2,3-epoxypropoxy)butane	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	4652 mg/kg
Dermal	4400 mg/kg
Inhalation (dusts and mists)	6 mg/l

#### Irritation/Corrosion

Product/ingredient name	Test	Species	Route of exposure	Result
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin	Mild irritant
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes	Mild irritant
1,4-Bis(2,3-epoxypropoxy)butane	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin	Non-irritant.
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes	Severe irritant

#### Conclusion/Summary

**Skin** : reaction product: Irritating to skin.  
 bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)  
 1,4-Bis(2,3-epoxypropoxy)butane  
 Based on the human occupational exposure data, this substance is considered as irritating to skin.

**Eyes** : reaction product: Irritating to eyes.  
 bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)  
 1,4-Bis(2,3-epoxypropoxy)butane  
 Severely irritating to eyes.

**Respiratory** : No additional information.

#### Sensitiser

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

### 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)  1,4-Bis(2,3-epoxypropoxy) butane	OECD 471 Bacterial Reverse Mutation Test	Positive
	OECD 476 In vitro Mammalian Cell Gene Mutation Test	Positive
	OECD 478 Genetic Toxicology: Rodent Dominant Lethal Test EPA OPPTS	Negative
	OECD 471 Bacterial Reverse Mutation Test	Negative
	OECD 473 In vitro Mammalian Chromosomal Aberration Test	Positive
	OECD 474 Mammalian Erythrocyte Micronucleus Test	Negative

**Conclusion/Summary** : No 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** : No 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 Study	Rat	Oral: 540 mg/kg NOEL	-

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**SECTION 11: Toxicological information**

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

**Teratogenicity**

Product/ingredient name	Test	Species	Result/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	Rabbit - Female	>300 mg/kg NOEL
	OECD 414 Prenatal Developmental Toxicity Study	Rabbit - Female	180 mg/kg NOAEL

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

**Specific target organ toxicity (single exposure)**

Not available.

**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** : 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.

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### 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	10 mg/kg	-
	OECD 411 Subchronic Dermal Toxicity: 90-day Study	NOAEL	100 mg/kg	-
	OECD 407 Repeated Dose 28-day Oral Toxicity Study in Rodents	NOAEL -	200 mg/kg	-

**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
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	EPA CFR	Acute EC50	72 hours Static	Algae	9.4 mg/l
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute EC50	48 hours Static	Daphnia	1.7 mg/l
	Unknown guidelines	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 <i>Daphnia</i> Magna Reproduction Test	Chronic NOEC	21 days Semi-static	Daphnia	0.3 mg/l
1,4-Bis(2,3-epoxypropoxy) butane	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation 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

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

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## SECTION 12: Ecological information

### 12.2 Persistence and degradability

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

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

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

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700) 1,4-Bis(2,3-epoxypropoxy) butane	3.242	31	low
	-0.269	-	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

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## 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

#### 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>	UN3082	Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A epoxy resin)
<b>ADN</b>	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol A epoxy resin)
<b>IMDG</b>	UN3082	Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A epoxy resin). Marine pollutant (Bisphenol A epoxy resin)
<b>IATA</b>	UN3082	Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A epoxy resin)

	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards	14.6 Special precautions for user	Additional information

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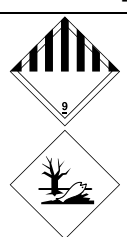
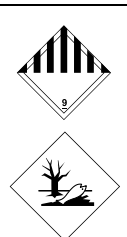
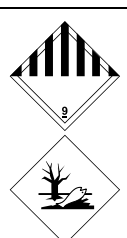
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<p><b>ADR/RID</b></p>	<p>9</p>		<p>III</p>	<p>Yes.</p>	<p><b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.</p>	<p>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> <p><b><u>Hazard identification number</u></b> 90</p> <p><b><u>Special provisions</u></b> 274 335 601</p> <p><b><u>Tunnel code</u></b> E</p>
<p><b>ADN</b></p>	<p>9</p>		<p>III</p>	<p>Yes.</p>	<p><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.</p>	<p>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p>
<p><b>IMDG</b></p>	<p>9</p>		<p>III</p>	<p>Yes.</p>	<p><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.</p>	<p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> <p><b><u>Emergency schedules (EmS)</u></b> F-A S-F</p>

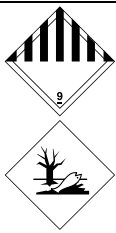


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IATA	9		III	Yes.	<b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. <b>Passenger and Cargo Aircraft</b> Quantity limitation: 450 L Packaging instructions: 964 <b>Cargo Aircraft Only</b> Quantity limitation: 450 L Packaging instructions: 964
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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

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**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.

## 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 Irrit. 2, H315	Calculation method
Eye Dam. 1, H318	Calculation method
Skin Sens. 1, H317	Calculation method
Aquatic Chronic 2, H411	Calculation method

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**SECTION 16: Other information**

**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 (dermal) - 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  
 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

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