

# SAFETY DATA SHEET

## ARALDITE® 2014 A US

### Section 1. Identification


**GHS product identifier** : ARALDITE® 2014 A US  
**Product code** : 00070383  
**Other means of identification** : Not available.  
**Product type** :  
**Material uses** : Epoxy adhesive  
**Supplier's details** : Huntsman Advanced Materials Americas LLC  
P.O. Box 4980  
The Woodlands, TX 77387  
  
Non-Emergency phone: (800) 257-5547  
  
**e-mail address of person responsible for this SDS** : MSDS@huntsman.com  
  
**Emergency telephone number (24h/7day)** : Chemtrec: (800) 424-9300 or (703) 527-3887

### Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : SKIN CORROSION/IRRITATION - Category 2  
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A  
SKIN SENSITIZATION - Category 1  
GERM CELL MUTAGENICITY - Category 1B  
AQUATIC TOXICITY (ACUTE) - Category 3  
AQUATIC TOXICITY (CHRONIC) - Category 2  
  
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 3.6%  
Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 9.1%

**GHS label elements**

**Hazard pictograms** : 

**Signal word** : Danger

**Hazard statements** : Causes serious eye irritation.  
Causes skin irritation.  
May cause an allergic skin reaction.  
May cause genetic defects.  
Toxic to aquatic life with long lasting effects.

## Section 2. Hazards identification

**Precautionary statements** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Avoid release to the environment. Avoid breathing vapor. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Collect spillage. IF exposed or concerned: Get medical attention. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention. Store locked up. Dispose of contents and container in accordance with all local, regional, national and international regulations.

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

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

Ingredient name	%	CAS number
Bisphenol A epoxy resin	30 - 60	25068-38-6
barium sulphate, natural	30 - 60	7727-43-7
Butanedioldiglycidyl ether	1 - 3	2425-79-8
triglycidyl isocyanurate	1 - 3	2451-62-9

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : 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. Get medical attention. 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.

## Section 4. First aid measures

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : Irritating to mouth, throat and stomach.

#### Over-exposure signs/symptoms

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

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : No specific treatment. Treat symptomatically. Call medical doctor or poison control center immediately if large quantities have been ingested.
- 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.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

- Flash point** : Closed cup: >93°C (>199.4°F) [Estimated]

#### Extinguishing media

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

- Specific hazards arising from the chemical** : 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** :

## Section 5. Fire-fighting measures

Decomposition products may include the following materials:

carbon dioxide  
Carbon monoxide  
nitrogen oxides  
sulfur oxides  
metal oxide/oxides

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

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

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

- Methods and materials for containment and cleaning up** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### 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. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. 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

## Section 7. Handling and storage

### Advice on general occupational hygiene

residue and can be hazardous. Do not reuse container.

- : 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.

### Conditions for safe storage, including any incompatibilities

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

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
triglycidyl isocyanurate	<b>ACGIH TLV (United States, 3/2012).</b> TWA: 0.05 mg/m <sup>3</sup> 8 hours.

### Appropriate engineering controls

- : If user operations generate dust, fumes, gas, vapor 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.

### 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.

### Individual protection measures

#### Hygiene measures

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

#### Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

#### Hand protection

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

#### Body protection

:

## Section 8. Exposure controls/personal 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** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. 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.
- Thermal hazards** : Not available.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Liquid. [Paste.]
- Color** : Beige.
- Odor** : Slight
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point/Freezing point** : Not available.
- Boiling/condensation point** : Not available.
- Flash point** : Closed cup: >93°C (>199.4°F) [Estimated]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : 1.55
- Solubility in water** : negligible
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.

## Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : No specific data.

## Section 10. Stability and reactivity

**Incompatible materials** : No specific data.

**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Test	Endpoint	Species	Result
Bisphenol A epoxy resin	-	LC0 Inhalation Vapor	Rat - Male	0.00001 ppm
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rat - Male, Female	>2000 mg/kg
Butanedioldiglycidyl ether	OECD 420 Acute Oral Toxicity - Fixed Dose Method	LD50 Oral	Rat - Female	>2000 mg/kg
	No official guidelines	LD50 Dermal	Rat - Male, Female	2150 mg/kg
triglycidyl isocyanurate	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat - Male, Female	1163 mg/kg
	OECD 403 Acute Inhalation Toxicity	LC50 Inhalation Dusts and mists	Rat - Male, Female	1.14 mg/l
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rat - Male, Female	>2000 mg/kg
	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat - Male, Female	400 to 800 mg/kg

#### Irritation/Corrosion

Product/ingredient name	Test	Species	Result
Bisphenol A epoxy resin	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Mild irritant
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Mild irritant
Butanedioldiglycidyl ether	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Non-irritant.
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Severe irritant
triglycidyl isocyanurate	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Non-irritant.
	EPA OPPTS	Rabbit	Eyes - Severe irritant

#### Conclusion/Summary

**Skin** : Bisphenol A epoxy resin Irritating to skin.  
 Butanedioldiglycidyl ether Based on the human occupational exposure data, this substance is considered as irritating to skin.  
 triglycidyl isocyanurate Non-irritating to the skin.

**Eyes** : Bisphenol A epoxy resin Irritating to eyes.  
 Butanedioldiglycidyl ether Severely irritating to eyes.  
 triglycidyl isocyanurate Severely irritating to eyes.

**Respiratory** : Bisphenol A epoxy resin No additional information.  
 Butanedioldiglycidyl ether No additional information.  
 triglycidyl isocyanurate No additional information.

## Section 11. Toxicological information

### Sensitization

Product/ingredient name	Test	Route of exposure	Species	Result
Bisphenol A epoxy resin	OECD 429 Skin Sensitization: Local Lymph Node Assay	skin	Mouse	Sensitizing
Butanedioldiglycidyl ether	OECD 406 Skin Sensitization	skin	Guinea pig	Sensitizing
triglycidyl isocyanurate	OECD 406 Skin Sensitization	skin	Guinea pig	Sensitizing

### Mutagenicity

Product/ingredient name	Test	Result
Bisphenol A epoxy resin	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Positive
	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic Metabolic activation: +/-	Positive
	Experiment: In vivo Subject: Mammalian-Animal Cell: Germ	Negative
	Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic	Negative
Butanedioldiglycidyl ether	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Positive
	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: +/-	Positive
	Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic	Negative
triglycidyl isocyanurate	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Positive
	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic Metabolic activation: +/-	Positive
	Experiment: In vivo Subject: Mammalian-Animal Cell: Germ	Positive
	Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic	Positive
	Experiment: In vitro Subject: Mammalian-Human Cell: Somatic Metabolic activation: +/-	Negative

**Conclusion/Summary** :



## Section 11. Toxicological information

triglycidyl isocyanurate

The weight of the scientific evidence indicates that this material is genotoxic.

### Carcinogenicity

Product/ingredient name	Test	Species	Dose	Exposure	Result/Result type
Bisphenol A epoxy resin	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat - Male, Female	15 mg/kg	2 years; 7 days per week	Negative - Oral - NOAEL
	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat - Female	1 mg/kg	2 years; 5 days per week	Negative - Dermal - NOEL
	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Mouse - Male	0.1 mg/kg	2 years; 3 days per week	Negative - Dermal - NOEL
triglycidyl isocyanurate	OECD 451 Carcinogenicity Studies	Rat - Male	4.36 mg/kg	99 weeks; 24 hours per day	Negative - Oral - NOAEL

### Reproductive toxicity

Product/ingredient name	Test	Species	Maternal toxicity	Fertility	Developmental effects
Bisphenol A epoxy resin	OECD 416 Two-Generation Reproduction Toxicity Study	Rat - Male, Female	Negative	Negative	Negative
triglycidyl isocyanurate	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat - Male	Negative	Negative	Negative

### Conclusion/Summary :

triglycidyl isocyanurate

No known significant effects or critical hazards.

### Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
Bisphenol A epoxy resin	OECD 414 Prenatal Developmental Toxicity Study	Rat - Female	Negative - Oral
	EPA CFR	Rabbit - Female	Negative - Dermal
	OECD 414 Prenatal Developmental Toxicity Study	Rabbit - Female	Negative - Oral

## Section 11. Toxicological information

### Conclusion/Summary :

triglycidyl isocyanurate

In accordance with column 2 of Annex VII - X of Regulation (EC) No 1907/2006, the test for this property of the substance does not need to be conducted.

### 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

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : Irritating to mouth, throat and stomach.

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

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

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

#### Short term exposure

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

#### Long term exposure

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

### Potential chronic health effects

## Section 11. Toxicological information

Product/ingredient name	Test	Endpoint	Species	Result
Bisphenol A epoxy resin	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - Male, Female	50 mg/kg
	OECD 411 Subchronic Dermal Toxicity: 90-day Study	Sub-chronic NOEL Dermal	Rat - Male, Female	10 mg/kg
	OECD 411 Subchronic Dermal Toxicity: 90-day Study	Sub-chronic NOAEL Dermal	Mouse - Male	100 mg/kg
Butanedioldiglycidyl ether	OECD 407 Repeated Dose 28-day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - Male, Female	200 mg/kg
triglycidyl isocyanurate	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - Male, Female	7.32 mg/kg/d
	OECD	Sub-acute NOEC Inhalation Dusts and mists	Mouse - Male	<100 mg/m <sup>3</sup>

- 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** : May cause genetic defects if swallowed.
- 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.

### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
Dermal	56122.4 mg/kg
Inhalation (dusts and mists)	34.17 mg/l

**Other information** : Not available.

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result
Bisphenol A epoxy resin	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

## Section 12. Ecological information

Butanedioldiglycidyl ether	OECD 211 <i>Daphnia Magna</i> Reproduction Test	Chronic	NOEC	21 days Semi-static	Daphnia	0.3	mg/l
	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
triglycidyl isocyanurate	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
	OECD 201 Alga, Growth Inhibition Test	Acute	EbC50 (biomass)	72 hours Static	Algae	29	mg/l
	OECD 209 Activated Sludge, Respiration Inhibition Test	Acute	IC50	3 hours Static	Bacteria	>100	mg/l
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute	LC50	24 hours Static	Daphnia	>100	mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute	LC50	96 hours Static	Fish	>77	mg/l

### Persistence and degradability

Product/ingredient name	Test	Period	Result
Bisphenol A epoxy resin	OECD Derived from OECD 301F (Biodegradation Test)	28 days	5 %
Butanedioldiglycidyl ether	OECD 301F Ready Biodegradability - Manometric Respirometry Test	28 days	43 %
triglycidyl isocyanurate	OECD 301B Ready Biodegradability - CO <sub>2</sub> Evolution Test	44 days	0.5 to 1 %

**Conclusion/Summary** : Bisphenol A epoxy resin Not readily biodegradable.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Bisphenol A epoxy resin	Fresh water 4.83 days Fresh water 3.58 days Fresh water 7.1 days	-	Not readily
Butanedioldiglycidyl ether triglycidyl isocyanurate	- Fresh water 6.66 days	- -	Not readily -

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Bisphenol A epoxy resin	3.242	31	low
Butanedioldiglycidyl ether	-0.269	-	low
triglycidyl isocyanurate	-0.8	-	low

### Mobility in soil

Not available.

## Section 12. Ecological information

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

### Other ecological information

**BOD5** : Not determined.

**COD** : Not determined.

**TOC** : Not determined.

## Section 13. Disposal considerations

**Disposal methods** : 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

## Section 14. Transport information

### Proper shipping name

**DOT** : Environmentally hazardous substance, liquid, n.o.s. Bisphenol a epoxy resin Marine pollutant





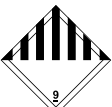

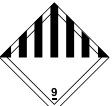

**TDG** : Environmentally hazardous substance, liquid, n.o.s. Bisphenol a epoxy resin Marine pollutant

**IMDG** : Environmentally hazardous substance, liquid, n.o.s. Bisphenol a epoxy resin Marine pollutant

**IATA** : Environmentally hazardous substance, liquid, n.o.s. Bisphenol a epoxy resin

Regulatory information	UN number	Classes	PG*	Label	Additional information

## Section 14. Transport information

<b>DOT Classification</b>	UN3082	9	III	 	Marine pollutants are only regulated for bulk and vessel shipments, per 49CFR171.4 (c) Exceptions. Except when all or part of the transportation is by vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packagings transported by motor vehicle, rail car or aircraft.
<b>TDG Classification</b>	UN3082	9	III	 	-
<b>IMDG Classification</b>	UN3082	9	III	 	<b>Emergency schedules (EmS)</b> F-A, S-F
<b>IATA Classification</b>	UN3082	9	III	 	<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

PG\* : Packing group

## Section 15. Regulatory information

### Safety, health and environmental regulations specific for the product

#### United States Regulations

**TSCA 8(b) inventory** : All components are listed or exempted.

**TSCA 5(a)2 final significant new use rule (SNUR)** : No ingredients listed.

## Section 15. Regulatory information

- TSCA 5(e) substance consent order** : No ingredients listed.
- TSCA 12(b) export notification** : No ingredients listed.
- SARA 311/312** : Immediate (acute) health hazard  
Delayed (chronic) health hazard
- Clean Air Act - Ozone Depleting Substances (ODS)** : This product does not contain nor is it manufactured with ozone depleting substances.
- SARA 313** : No ingredients listed.
- CERCLA Hazardous substances** : No ingredients listed.

### State regulations

- PENNSYLVANIA - RTK** : No ingredients listed.
- California Prop 65** : This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

### Canadian regulations

- CEPA DSL** : All components are listed or exempted.
- WHMIS Classes** : Class D-2A: Material causing other toxic effects (Very toxic).  
Class D-2B: Material causing other toxic effects (Toxic).

**This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.**

### Brazil Regulations

- Classification system used** : Norma ABNT-NBR 14725-2:2012

### International lists

- Australia inventory (AICS)**: 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**: At least one component is not listed.  
**Malaysia Inventory (EHS Register)**: Not determined.  
**New Zealand Inventory of Chemicals (NZIoC)**: At least one component is not listed.  
**Philippines inventory (PICCS)**: At least one component is not listed.  
**Taiwan inventory (CSNN)**: Not determined.

## Section 16. Other information

**Hazardous Material  
Information System (U.S.A.)** :

<b>Health</b>	*	2
<b>Flammability</b>		1
<b>Physical hazards</b>		0
<b>Personal protection</b>		

**The customer is responsible for determining the PPE code for this material.**

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

**National Fire Protection  
Association (U.S.A.)** :



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▣ Indicates information that has changed from previously issued version.

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**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.**



## Section 16. Other information

*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.*

**NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE. NO PART OF THIS DATA SHEET MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM, OR BY ANY MEANS, WITHOUT PERMISSION IN WRITING FROM HUNTSMAN. ALL REQUESTS FOR PERMISSION TO REPRODUCE MATERIAL FROM THIS DATA SHEET SHOULD BE DIRECTED TO HUNTSMAN, MANAGER, PRODUCT SAFETY AT THE ABOVE ADDRESS.**

# SAFETY DATA SHEET

## ARALDITE® 2014 B US

### Section 1. Identification

**GHS product identifier** : ARALDITE® 2014 B US  
**Product code** : 00066418  
**Other means of identification** : Not available.  
**Product type** : Liquid.  
**Material uses** : Adhesive Hardener  
**Supplier's details** : Huntsman Advanced Materials Americas LLC  
P.O. Box 4980  
The Woodlands, TX 77387  
  
Non-Emergency phone: (800) 257-5547  
  
**e-mail address of person responsible for this SDS** : MSDS@huntsman.com  
  
**Emergency telephone number (24h/7day)** : Chemtrec: (800) 424-9300 or (703) 527-3887

### Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : SKIN CORROSION/IRRITATION - Category 2  
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1  
SKIN SENSITIZATION - Category 1  
TOXIC TO REPRODUCTION [Fertility] - Category 2  
AQUATIC HAZARD (LONG-TERM) - Category 3

#### GHS label elements

##### Hazard pictograms



**Signal word** : Danger

**Hazard statements** : Causes serious eye damage.  
Causes skin irritation.  
May cause an allergic skin reaction.  
Suspected of damaging fertility.  
Harmful to aquatic life with long lasting effects.

**Precautionary statements** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Avoid release to the environment. Avoid breathing vapor. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. IF exposed or concerned: Get medical attention. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing

## Section 2. Hazards identification

before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician. Store locked up. Dispose of contents and container in accordance with all local, regional, national and international regulations.

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

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

Ingredient name	%	CAS number
Polyamide resin	3 - 7	68410-23-1
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	3 - 7	10563-29-8
triethylenetetramine	3 - 7	112-24-3
Diethylenetriamine	3 - 7	111-40-0
Bisphenol A	1 - 3	80-05-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

## Section 4. First aid measures

### Most important symptoms/effects, 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. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- 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** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
stomach pains  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.
- 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.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

- Flash point** : Closed cup: >93°C (>199.4°F) [Estimated]

#### Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.

## Section 5. Fire-fighting measures

- Unsuitable extinguishing media** : None known.
- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides  
sulfur oxides  
metal oxide/oxides
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
- Methods and materials for containment and cleaning up** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### 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. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe the vapor 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.

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

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
Diethylenetriamine	<b>ACGIH TLV (United States, 6/2013). Absorbed through skin.</b> TWA: 4.2 mg/m <sup>3</sup> 8 hours. TWA: 1 ppm 8 hours.

**Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor 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.

**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.

### 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.

## 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.
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- 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** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. 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.
- Thermal hazards** : Not available.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Liquid. [Thixotropic paste]
- Color** : Gray.
- Odor** : Slight
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point/Freezing point** : Not available.
- Boiling/condensation point** : Not available.
- Flash point** : Closed cup: >93°C (>199.4°F) [Estimated]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : 1.57
- Solubility in water** : Not available.
- Water Solubility Result** : 0.1 / 20 deg C
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.

## Section 9. Physical and chemical properties

**Viscosity** : Not available.

## Section 10. Stability and reactivity

**Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**Chemical stability** : The product is stable.

**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**Conditions to avoid** : No specific data.

**Incompatible materials** : No specific data.

**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Test	Endpoint	Species	Result
Polyamide resin	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rat - Male, Female	>2000 mg/kg
	OECD 423 Acute Oral toxicity - Acute Toxic Class Method	LD50 Oral	Rat - Female	>2 g/kg
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	Unknown guidelines	LD50 Dermal	Rabbit	1310 mg/kg
triethylenetetramine	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat - Male, Female	1669 mg/kg
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rabbit - Male, Female	1465.4 mg/kg
	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat - Male, Female	1716.2 mg/kg
Diethylenetriamine	OECD 403 Acute Inhalation Toxicity	LC50 Inhalation Dusts and mists	Rat - Male, Female	0.185 mg/l
	No official guidelines	LD50 Dermal	Rabbit	1045 mg/kg
Bisphenol A	No official guidelines	LD50 Oral	Rat - Male	1620 mg/kg
	Unknown guidelines	LC50 Inhalation Dusts and mists	Rat - Male, Female	>170 mg/m <sup>3</sup>
	Unknown guidelines	LD50 Dermal	Rabbit - Male	6400 mg/kg
	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat - Male, Female	2000 to 5000 mg/kg

#### Irritation/Corrosion



## Section 11. Toxicological information

Product/ingredient name	Test	Species	Result
Polyamide resin	OECD OECD 431 In Vitro Skin Corrosion: Human Skin Model Test	Human skin model	Skin - Non-corrosive
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine triethylenetetramine	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Corrosive
	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Corrosive
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Skin - Corrosive
	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Eyes - Corrosive
Diethylenetriamine	No official guidelines	Rabbit	Skin - Corrosive
Bisphenol A	No official guidelines	Rabbit	Eyes - Corrosive
	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Non-irritant.
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Severe irritant

### Conclusion/Summary

#### Skin

: Irritating to skin.

Polyamide resin	Non-corrosive
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine triethylenetetramine	Corrosive to the skin.
Diethylenetriamine	Corrosive to the skin.
Bisphenol A	Non-irritating to the skin.

#### Eyes

: Corrosive to eyes.

Polyamide resin	Corrosive to eyes.
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine triethylenetetramine	No additional information.
Diethylenetriamine	Corrosive to eyes.
Bisphenol A	Severely irritating to eyes.

#### Respiratory

: Polyamide resin No additional information.  
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine triethylenetetramine No additional information.  
Diethylenetriamine No additional information.  
Bisphenol A No additional information.

### Sensitization

## Section 11. Toxicological information

Product/ingredient name	Test	Route of exposure	Species	Result
Polyamide resin	OECD 429 Skin Sensitization: Local Lymph Node Assay	skin	Mouse	Sensitizing
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	OECD 406 Skin Sensitization	skin	Guinea pig	Sensitizing
triethylenetetramine	OECD 406 Skin Sensitization	skin	Guinea pig	Sensitizing
Diethylenetriamine	OECD 406 Skin Sensitization	skin	Guinea pig	Sensitizing
	No official guidelines	Respiratory	Mouse	Not sensitizing
Bisphenol A	OECD 429 Skin Sensitization: Local Lymph Node Assay	skin	Mouse	Not sensitizing

### Mutagenicity

Product/ingredient name	Test	Result
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: +/-	Negative
triethylenetetramine	Experiment: In vitro Subject: Mammalian-Human Metabolic activation: +/-	Negative
	Experiment: In vitro Subject: Mammalian-Animal	Negative
Diethylenetriamine	Experiment: In vivo Subject: Mammalian-Animal	Negative
	Experiment: In vivo Subject: Insect	Negative
	Experiment: In vivo Subject: Mammalian-Animal	Negative
Bisphenol A	Cell: Somatic Experiment: In vitro Subject: bacteria/yeast Metabolic activation: +/-	Negative
	Experiment: In vivo Subject: Mammalian-Animal	Negative

### Conclusion/Summary :

N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	Not mutagenic in a standard battery of genetic toxicological tests.
triethylenetetramine	The weight of the scientific evidence indicates that this material is non-genotoxic.
Diethylenetriamine	No mutagenic effect.

### Carcinogenicity

## Section 11. Toxicological information

Product/ingredient name	Test	Species	Dose	Exposure	Result/Result type
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine triethylenetetramine	No official guidelines	Mouse - Male	-	20 months; 3 days per week	Negative - Dermal - NOAEL
	OECD 451 Carcinogenicity Studies	Mouse - Male	42 mg/kg	3 days per week	Negative - Dermal - NOAEL
Diethylenetriamine	No official guidelines	Mouse - Male	56.3 mg/kg	3 days per week	Negative - Dermal - NOEL
Bisphenol A	-	Rat - Male, Female	-	103 weeks; 7 days per week	Negative - Oral - NOAEL

### Reproductive toxicity

Product/ingredient name	Test	Species	Maternal toxicity	Fertility	Developmental effects
Polyamide resin	-	Rat - Male, Female	Negative	Negative	Negative
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	OECD 422 Combined Repeated Dose Toxicity Study with the Reproduction/ Developmental Toxicity Screening Test	Rat - Male, Female	Positive	Negative	Positive
Diethylenetriamine	OECD 421 Reproduction/ Developmental Toxicity Screening Test	Rat - Male, Female	Positive	Positive	Negative
Bisphenol A	OECD 416 Two-Generation Reproduction Toxicity Study	Rat - Male, Female	Positive	Negative	Negative

### Conclusion/Summary :

triethylenetetramine

In accordance with column 2 of Annex VII - X of Regulation (EC) No 1907/2006, the test for this property of the substance does not need to be conducted.

### Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	OECD 422 Combined Repeated Dose Toxicity Study with the Reproduction/ Developmental Toxicity Screening Test	Rat - Male, Female	Positive - Oral
triethylenetetramine	OECD 414 Prenatal Developmental Toxicity Study	Rat	Negative - Oral
	OECD 414 Prenatal	Rabbit	Negative - Dermal

## Section 11. Toxicological information

Bisphenol A	Developmental Toxicity Study OECD 416 Two-Generation Reproduction Toxicity Study	Rat - Female	Negative - Oral
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### Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Diethylenetriamine	Category 3	Not applicable.	Respiratory tract irritation
Bisphenol A	Category 3	Not applicable.	Respiratory tract irritation

### 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

- Eye contact** : Causes serious eye damage.
- 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.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : May cause burns to mouth, throat and stomach.

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

- Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
stomach pains  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

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

## Section 11. Toxicological information

### 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	Endpoint	Species	Result
Polyamide resin	OECD 422 Combined Repeated Dose Toxicity Study with the Reproduction/ Developmental Toxicity Screening Test	Sub-chronic NOAEL Oral	Rat - Male, Female	1000 mg/kg
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - Male, Female	1000 ppm
	No official guidelines	Chronic NOAEL Dermal	Mouse - Male	>56.3 mg/kg/d
	No official guidelines	Sub-acute NOEC Inhalation Vapor	Rat - Male, Female	550 mg/m <sup>3</sup>
triethylenetetramine	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - Male, Female	50 mg/kg/d
Diethylenetriamine	OECD	Sub-chronic NOEL Oral	Rat - Male, Female	70 to 80 mg/kg/d
	No official guidelines	Chronic NOAEL Dermal	Rat - Male, Female	114 mg/kg/d
	No official guidelines	Sub-acute NOEC Inhalation Vapor	Rat - Male, Female	550 mg/m <sup>3</sup>
Bisphenol A	OECD 407 Repeated Dose 28-day Oral Toxicity Study in Rodents	Sub-chronic LOAEL Oral	Rat - Male, Female	600 mg/kg
	Unknown guidelines	Sub-chronic NOEC Inhalation Dusts and mists	Rat - Male, Female	10 mg/m <sup>3</sup>

**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** : Suspected of damaging fertility.

## Section 11. Toxicological information

### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
Oral	14361.5 mg/kg
Dermal	10870.7 mg/kg
Inhalation (dusts and mists)	6.051 mg/l

Other information : Not available.

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result
Polyamide resin	DIN 38412 (Lumistox test)	Acute EC0	-	Bacteria	>100 mg/l
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute EC50	48 days Static	Daphnia	5.18 mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute ErC50 (growth rate)	72 hours Static	Algae	4.11 mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours Semi-static	Fish	7.07 mg/l
	OECD 201 Alga, Growth Inhibition Test	Chronic LOAEL	72 hours Static	Algae	1.93 mg/l
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	DIN DIN 38412 Part 8	Acute EC50	16 hours Static	Bacteria	181 mg/l
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute EC50	48 hours Static	Daphnia	9.2 mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute ErC50 (growth rate)	72 hours Static	Algae	21 mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours Static	Fish	>100 mg/l
	OECD 201 Alga, Growth Inhibition Test	Chronic LOAEL	72 hours Static	Algae	5.7 mg/l
triethylenetetramine	No official guidelines	Acute EC50	30 minutes Static	Bacteria	800 mg/l
	EU EC C.2 Acute Toxicity for Daphnia	Acute EC50	48 hours Static	Daphnia	31.1 mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute ErC50 (growth rate)	72 hours Semi-static	Algae	20 mg/l
	EPA OPPTS EPA OTS 797.1400	Acute LC50	96 hours Static	Fish	330 mg/l
	No official guidelines	Chronic EC10	30 minutes Static	Bacteria	42.5 mg/l
	OECD OECD 202: Part II ( <i>Daphnia</i> sp., Reproduction Test)	Chronic EC10	21 days Semi-static	Daphnia	1.9 mg/l
OECD 201 Alga,	Chronic NOECr	72 hours	Algae	<2.5 mg/l	

## Section 12. Ecological information

Diethylenetriamine	Growth Inhibition Test No official guidelines	Acute	EC50	48 hours Static	Daphnia	32	mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute	EbC50 (biomass)	72 hours Static	Algae	1164	mg/l
	EU EC C.1 Acute Toxicity for Fish	Acute	LC50	96 hours Semi-static	Fish	430	mg/l
	OECD 201 Alga, Growth Inhibition Test	Chronic	NOEC	72 hours Static	Algae	10	mg/l
	No official guidelines	Chronic	NOEC	3 hours Static	Bacteria	6	mg/l
	EU	Chronic	NOEC	21 days Semi-static	Daphnia	5.6	mg/l
	OECD OECD 210 - Fish, Early-Life Stage Toxicity Test	Chronic	NOEC	28 days Semi-static	Fish	10	mg/l
Bisphenol A	-	Acute	EC50	96 hours	Algae	2.5 to 3.1	mg/l
	-	Acute	EC50	48 hours	Daphnia	3.9 to 10. 2	mg/l
	-	Acute	LC50	96 hours	Fish	7.5	mg/l
	EPA OPPTS	Chronic	NOEC	444 days Flow-through	Fish	0.016	mg/l

### Persistence and degradability

Product/ingredient name	Test	Period	Result
Polyamide resin	OECD 301B Ready Biodegradability - CO <sub>2</sub> Evolution Test	74 days	100 %
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	ISO ISO 7827, 1984 - Evaluation in an aqueous medium of the ultimate aerobic biodegradability of organic compounds	28 days	100 %
triethylenetetramine	OECD 302A Inherent Biodegradability: Modified SCAS Test	84 days	20 %
Diethylenetriamine	OECD 301D Ready Biodegradability - Closed Bottle Test	162 days	0 %
Diethylenetriamine	OECD 301D Ready Biodegradability - Closed Bottle Test	21 days	87 %
Bisphenol A	-	28 days	1 to 2 %

**Conclusion/Summary** : triethylenetetramine Not biodegradable  
Diethylenetriamine Readily biodegradable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	-	-	Readily
Diethylenetriamine	-	50%; 0.11 day(s)	Readily
Bisphenol A	-	-	Not readily

### Bioaccumulative potential

## Section 12. Ecological information

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Polyamide resin	-	1.85 to 2.69	low
N'-(3-Aminopropyl)-N,N-dimethylpropane-1,3-diamine	0.5	-	low
triethylenetetramine	-2.65	99	low
Diethylenetriamine	-1.58	0.3 to 6.3	low

### Mobility in soil

Not available.

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

### Other ecological information

**BOD5** : Not determined.

**COD** : Not determined.

**TOC** : Not determined.

## Section 13. Disposal considerations

**Disposal methods** : 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

## Section 14. Transport information

### Proper shipping name

**DOT** : Not regulated.

**TDG** : Not regulated.

**IMDG** : Not regulated.

**IATA** : Not regulated.



## Section 14. Transport information

Regulatory information	UN number	Classes	PG*	Label	Additional information
DOT Classification	Not regulated.	-	-		-
TDG Classification	Not regulated.	-	-		-
IMDG Classification	Not regulated.	-	-		-
IATA Classification	Not regulated.	-	-		-

PG\* : Packing group

## Section 15. Regulatory information

### Safety, health and environmental regulations specific for the product

#### United States Regulations

**TSCA 8(b) inventory** : All components are listed or exempted.

**TSCA 5(a)2 final significant new use rule (SNUR)** : No ingredients listed.

**TSCA 5(e) substance consent order** : No ingredients listed.

**TSCA 12(b) export notification** : No ingredients listed.

**SARA 311/312** : Immediate (acute) health hazard  
Delayed (chronic) health hazard

**Clean Air Act - Ozone Depleting Substances (ODS)** : This product does not contain nor is it manufactured with ozone depleting substances.

	<u>Product name</u>	<u>Concentration %</u>
<b>SARA 313 Form R - Reporting requirements</b>	: Bisphenol A	1.9877

**CERCLA Hazardous substances** : No ingredients listed.

#### State regulations

**PENNSYLVANIA - RTK** : triethylenetetramine, Bisphenol A, Diethylenetriamine

## Section 15. Regulatory information

**California Prop 65** : This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

### Canadian regulations

**CEPA DSL** : All components are listed or exempted.

**WHMIS Classes** : Class D-2A: Material causing other toxic effects (Very toxic).  
Class D-2B: Material causing other toxic effects (Toxic).

**This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.**

### Brazil Regulations

**Classification system used** : Norma ABNT-NBR 14725-2:2012

### International lists

: **Australia inventory (AICS)**: All components are listed or exempted.  
**China inventory (IECSC)**: All components are listed or exempted.  
**Japan inventory**: Not determined.  
**Korea inventory**: All components are listed or exempted.  
**Malaysia Inventory (EHS Register)**: Not determined.  
**New Zealand Inventory of Chemicals (NZIoC)**: All components are listed or exempted.  
**Philippines inventory (PICCS)**: All components are listed or exempted.  
**Taiwan inventory (CSNN)**: Not determined.

## Section 16. Other information

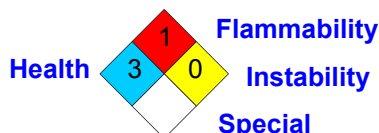
**Hazardous Material Information System (U.S.A.)** :

Health	*	3
Flammability		1
Physical hazards		0
Personal protection		

**The customer is responsible for determining the PPE code for this material.**

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

**National Fire Protection Association (U.S.A.)** :



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## Section 16. Other information

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✔ Indicates information that has changed from previously issued version.

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