

Material Safety Data Sheet

1. Product and company identification

Product name : **ARALDITE LY 1556 US**

MSDS # 00058885

Product use : Liquid epoxy resin

Huntsman Advanced Materials Americas, LLC
10003 Woodloch Forest Drive
The Woodlands, TX 77380
8 a.m. to 5 p.m. phone: (800) 257-5547

Validation date : 1/28/2011.

In case of emergency

Spills, Leaks, Fire or Exposure- call Chemtrec: (800) 424-9300
In Canada: (613) 996-6666

2. Hazards identification

Physical state : Liquid.

Odor : Slight

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

Emergency overview : WARNING!

CAUSES EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION.

Irritating to eyes and skin. May cause sensitization by skin contact. Do not breathe vapor or mist. Do not get on skin or clothing. Avoid contact with eyes. Wash thoroughly after handling.

GENERAL INFORMATION : Read the entire MSDS for a more thorough evaluation of the hazards.

3. Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Bisphenol A epoxy resin	25068-38-6	60 - 100

4. 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.

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.

4 . First aid measures

- 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 adverse health effects persist or are severe. 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.
- Ingestion** : Wash out mouth with water. Move exposed person to fresh air. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person.
- Notes to physician** : No specific treatment. Treat symptomatically. Call medical doctor or poison control center immediately if large quantities have been ingested.

5 . Fire-fighting measures

- Flash point** : Closed cup: >200°C (>392°F) [DIN 51758 EN 22719 (Pensky-Martens Closed Cup)]
- Products of combustion** : No specific data.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : In a fire or if heated, a pressure increase will occur and the container may burst. 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. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- 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.

6 . Accidental release measures

- Personal precautions** : 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 (see Section 8).
- 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 for 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.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). 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. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. 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.
- Storage** : Store between the following temperatures: 2 to 40°C (35.6 to 104°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Consult local authorities for acceptable exposure limits.

- Preventive Measures** : Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.
- Engineering controls** : Use local exhaust ventilation to maintain airborne concentrations below the TLV. Suitable respiratory equipment should be used in cases of insufficient ventilation or where operational procedures demand it. For guidance on engineering control measures refer to publications such as the ACGIH current edition of 'Industrial Ventilation, a manual of Recommended Practice.'
- Personal protection**
- Eyes** : 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 or dusts.
- Skin** : 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.
- Respiratory** : 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.
- Hands** : 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. >8 hours (breakthrough time): butyl rubber, Ethyl Vinyl Alcohol Laminate (EVAL)
- Personal protective equipment (Pictograms)** :



9 . Physical and chemical properties

General information

Appearance

Physical state	: Liquid.
Color	: Yellow.
Odor	: Slight
Odor threshold	: Not available.

Important health, safety and environmental information

pH	: 7 [Conc. (% w/w): 50%]
Boiling point	: >200°C (>392°F)
Melting point	: 30 to 50°C (86 to 122°F)
Flash point	: Closed cup: >200°C (>392°F) [DIN 51758 EN 22719 (Pensky-Martens Closed Cup)]
Oxidizing properties	: None
Vapor pressure	: <0.00001 kPa (<0.000075 mm Hg) [20°C]
Relative density	: 1.16
Partition coefficient: n-octanol/water (log Kow)	: 3.242
Viscosity	: Dynamic: 9500 to 12000 mPa·s (9500 to 12000 cP)
Vapor density	: Not available.
VOC content	: 100 % (w/w)

10 . Stability and reactivity

Stability and reactivity	: The product is stable.
Incompatibility with various substances	: Carbon oxides, Burning produces obnoxious and toxic fumes.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.
Hazardous decomposition products	: No specific data.

11 . Toxicological information

Toxicity data

Acute toxicity

Product/ingredient name	Test	Species	Result	Exposure
Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	LD50 Oral	Rat	>5000 mg/kg	-
	LC0 Inhalation Vapor	Rat - Male	0.00001 ppm	5 hours

Sensitizer

Product/ingredient name	Route of exposure	Species	Result
Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	skin	Guinea pig	Sensitizing

Chronic toxicity

Product/ingredient name	Test	Species	Result	Exposure
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11 . Toxicological information

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

Sub-chronic
NOAEL Oral

Rat - Male,
Female

50 mg/kg

14 weeks; 7 days
per week

Sub-chronic
Dermal

Rat - Male,
Female

10 mg/kg

13 weeks; 5 days
per week

Sub-chronic
NOAEL Dermal

Mouse - Male

100 mg/kg

13 weeks; 3 days
per week

Carcinogenicity

Product/ingredient name

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

Test

Negative - Oral -
NOAEL

Species

Rat - Male,
Female

Result

15 mg/kg

Exposure

2 years; 7 days
per week

Negative -
Dermal -
Negative -
Dermal -

Rat - Female

1 mg/kg

2 years; 5 days
per week

Mouse - Male

0.1 mg/kg

2 years; 3 days
per week

Mutagenicity

Product/ingredient name

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

Test

-

Experiment

Experiment: In vitro
Subject: Bacteria
Metabolic activation: +/-

Result

Positive

-

Experiment: In vitro
Subject: Mammalian-
Animal

Positive

Cell: Somatic
Metabolic activation: +/-

-

Experiment: In vivo
Subject: Mammalian-
Animal

Negative

Cell: Germ

-

Experiment: In vivo
Subject: Mammalian-
Animal
Cell: Somatic

Negative

Teratogenicity

Product/ingredient name

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

Result

Negative - Oral

Species

Rat - Female

Dose

>540 mg/kg

Exposure

10 days

Negative -
Dermal

Rabbit - Female

>300 mg/kg

13 days; 6 hours
per day

Negative - Oral

Rabbit - Female

180 mg/kg
NOAEL

13 days

Reproductive toxicity

Product/ingredient name

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

Maternal toxicity

-

Fertility

-

Development toxin

-

Species

Rat - Male,
Female

Dose

Oral:
540
mg/kg

Exposure

238 days; 7
days per
week

Potential acute health effects

Ingestion

: No known significant effects or critical hazards.

Inhalation

: No known significant effects or critical hazards.

Eyes

: Irritating to eyes.

Skin

: Irritating to skin. May cause sensitization by skin contact.

11 . Toxicological information

Potential chronic health effects

Chronic effects	: Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Target organs	: None known.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	-	Acute EC50 9.4 mg/L Fresh water	Algae	72 hours Static
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute EC50 1.7 mg/L Fresh water	Daphnia	48 hours Static
	-	Acute IC50 >100 mg/L Fresh water	Bacteria	3 hours Static
	OECD 203 Fish, Acute Toxicity Test	Acute LC50 1.5 mg/L Fresh water	Fish	96 hours Static
	OECD 211 <i>Daphnia Magna</i> Reproduction Test	Chronic NOEC 0.3 mg/L Fresh water	Daphnia	21 days Semi-static

Biodegradability

Product/ingredient name	Test	Result	Dose	Inoculum
Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	OECD Derived from OECD 301F (Biodegradation Test)	5 % - Not readily - 28 days	20 mg/L Oxygen consumption	-

Conclusion/Summary : Not readily biodegradable.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	Fresh water 4.83 days Fresh water 3.58 days Fresh water 7.1 days	-	Not readily

Bioaccumulative potential

Product/ingredient name	LogP_{ow}	BCF	Potential
Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	3.242	31	low

Environmental effects : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Not readily biodegradable. This product shows a low bioaccumulation potential. Water polluting material. May be harmful to the environment if released in large quantities.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. 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.

14 . Transport information

Transportation Emergency Number 1-800-424-9300 (CHEMTREC).

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
DOT Classification	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol A epoxy resin) Marine pollutant	9	III	 	-
TDG Classification	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol A epoxy resin) Marine pollutant	9	III	 	-
IMDG Class	UN3082	Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A epoxy resin) Marine pollutant	9	III	 	Emergency schedules (EmS) F-A, S-F
IATA-DGR Class	UN3082	Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A epoxy resin)	9	III	 	Passenger and Cargo Aircraft Quantity limitation: 450 L Packaging instructions: 964 Cargo Aircraft Only Quantity limitation: 450 L Packaging instructions: 964

14 . Transport information

PG* : Packing group

The transport regulations may change in the different countries. Check for the appropriate regulations in the country of transport or usage of this product.

15 . Regulatory information

United States

HCS Classification : Irritating material
Sensitizing material

U.S. Federal regulations : **TSCA 8(a) IUR**: Partial exemption
United States inventory (TSCA 8b): This material is listed or exempted.

CERCLA: Hazardous substances. : No ingredients listed.

SARA 313 : No ingredients listed.

This product does not contain nor is it manufactured with ozone depleting substances.

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.

Canada

WHMIS (Canada) : Class D-2B: Material causing other toxic effects (Toxic).

CEPA (DSL) : This material is listed or exempted.

This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS (Material Safety Data Sheet) contains all the information required by the CPR.

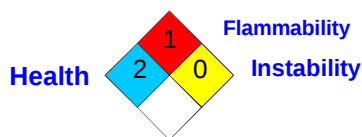
16 . Other information

Label requirements : CAUSES EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION.

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

Health	2
Fire hazard	1
Reactivity	0

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



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Notice to reader

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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.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon

16 . Other information

the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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▣ Indicates information that has changed from previously issued version.