

SAFETY DATA SHEET



ARALDITE AV 4076-1

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or mixture

Product name : ARALDITE AV 4076-1
Product type : Liquid.
Product description : Preparation
Use of the substance/mixture : Resin for adhesive systems

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2. HAZARDS IDENTIFICATION

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

Classification : Xi; R36/38
 R43
 N; R51/53

Human health hazards : Irritating to eyes and 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 11 for more detailed information on health effects and symptoms.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/preparation : Preparation

Ingredient name	CAS number	%	Number	Classification
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700) See section 16 for the full text of the R-phrases declared above	25068-38-6	60 - 100		Xi; R36/38 [1] R43 N; R51/53

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

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] PBT-substance

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3. COMPOSITION/INFORMATION ON INGREDIENTS

[4] vPvB-substance

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

4. FIRST AID MEASURES

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. 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 if adverse health effects persist or are severe. 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.

Skin contact

: Flush contaminated skin with plenty of 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.

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.

Protection of first-aiders

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

Notes to physician

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

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

5. FIRE-FIGHTING MEASURES

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. This material is toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products

: Burning produces obnoxious and toxic fumes., Carbon oxides

Special protective equipment for fire-fighters

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

6. ACCIDENTAL RELEASE MEASURES

- 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 spilt material. Avoid breathing vapour 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 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.
- Methods for 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.

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. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Avoid release to the environment. Refer to special instructions/safety data sheet. 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 unlabelled containers. Use appropriate containment to avoid environmental contamination.
- Storage hazard class** : Storage class 10, Environmentally hazardous liquids
Huntsman Advanced Materials
- Packaging materials**
- Recommended** : Use original container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit values

<u>Ingredient name</u>	<u>Occupational exposure limits</u>
No exposure limit value known.	

9. PHYSICAL AND CHEMICAL PROPERTIES

Vapour pressure	: 0.001 kPa (0.0075 mm Hg) [20°C]	20	deg C
Density	: 1.16 g/cm ³ [25°C (77°F)]		
Water solubility	: practically insoluble		

10. STABILITY AND REACTIVITY

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.
Materials to avoid	: strong acids, strong bases, strong oxidising agents
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced. Burning produces obnoxious and toxic fumes., Carbon oxides

11. TOXICOLOGICAL INFORMATION**Toxicokinetics**

Absorption	: Not available.
Distribution	: Not available.
Metabolism	: Not available.
Elimination	: Not available.

Potential acute health effects

Inhalation	: No known significant effects or critical hazards.
Ingestion	: Irritating to mouth, throat and stomach.
Skin contact	: Irritating to skin. May cause sensitisation by skin contact.
Eye contact	: Irritating to eyes.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
ARALDITE AV 4076-1	LD50 Oral	Rat	>5000 mg/kg	-
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Female	>2000 mg/kg	-
	LC0 Inhalation Vapour	Rat - Male	0.00001 ppm	5 hours

Conclusion/Summary : Not available.

Potential chronic health effects**Chronic toxicity**

Product/ingredient name	Result	Species	Dose	Exposure
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 NOEL : 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

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Product/ingredient name	Route of exposure	Species	Result
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11. TOXICOLOGICAL INFORMATION

ARALDITE AV 4076-1	skin	Guinea pig	Sensitising
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	skin	Mouse	Sensitising

Conclusion/Summary : Not available.

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	Negative - Oral - NOAEL	Rat - Male, Female	15 mg/kg	2 years; 7 days per week
	Negative - Dermal - NOEL :	Rat - Female	1 mg/kg	2 years; 5 days per week
	Negative - Dermal - NOEL :	Mouse - Male	0.1 mg/kg	2 years; 3 days per week

Conclusion/Summary : Not available.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	-	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

Conclusion/Summary : Not available.

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	Negative - Oral	Rat - Female	>540 mg/kg NOEL :	10 days
	Negative - Dermal	Rabbit - Female	>300 mg/kg NOEL :	13 days; 6 hours per day
	Negative - Oral	Rabbit - Female	180 mg/kg NOAEL	13 days

Conclusion/Summary : Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Developmental toxin	Species	Dose	Exposure
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	-	-	-	Rat - Male, Female	Oral: 540 mg/kg NOEL :	238 days; 7 days per week

Conclusion/Summary : Not available.

Chronic effects : 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.

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11. TOXICOLOGICAL INFORMATION**Over-exposure signs/symptoms**

Inhalation	: No specific data.
Ingestion	: No specific data.
Skin	: Adverse symptoms may include the following: irritation redness
Eyes	: Adverse symptoms may include the following: irritation watering redness

12. ECOLOGICAL INFORMATION

Environmental effects : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Water polluting material. May be harmful to the environment if released in large quantities.

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 Daphnia Magna Reproduction Test	Chronic NOEC 0.3 mg/L Fresh water	Daphnia	21 days Semi-static

Conclusion/Summary : Not available.

Other ecological information**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 available.

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

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

13. DISPOSAL CONSIDERATIONS

- Methods of disposal** : The generation of waste should be avoided or minimised 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 spilt material and runoff and contact with soil, waterways, drains and sewers.
- European waste catalogue (EWC)** : The relevant EU Directives and local, regional and national regulations must be complied with. It is among the tasks of the end user to assign the waste to waste codes specific to industrial sectors and processes according to the European Waste catalogue. It is recommended that the details be agreed with the waste disposer responsible.
- 07 02 08*
- 07 02 08* other still bottoms and reaction residues
- Hazardous waste** : Yes.

14. TRANSPORT INFORMATION

International transport regulations

Proper shipping name

- ADR** : Environmentally hazardous substance, liquid, n.o.s. BISPHENOL A EPOXY RESIN
- IMDG** : Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN). Marine pollutant (Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700))
- IATA** : Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN)

Regulatory information	UN number	Classes	Packing group	Label	Additional information
Land - road/railway ADR/RID Class	UN3082	9	III		Classification code M6 Hazard identification number 90
Sea IMDG Class	UN3082	9	III		Emergency schedules (EmS) F-A, S-F
Air IATA Class	UN3082	9	III		Passenger and Cargo Aircraft Quantity limitation: 450 L Packaging instructions: 914 Cargo Aircraft Only Quantity limitation: 450 L Packaging instructions: 914

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14. TRANSPORT INFORMATION**15. REGULATORY INFORMATION****EU regulations**

Classification and labeling have been determined according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.

Hazard symbol or symbols :

Xi, N Irritant, Dangerous for the environment

Risk phrases

: 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.

Safety phrases

: S24- Avoid contact with skin.
S37- Wear suitable gloves.
S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

Contains

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

Exceptional labelling of special preparations

: Contains epoxy constituents. See information supplied by the manufacturer.

International regulations**International lists****Europe inventory**

: All components are listed or exempted.

United States inventory (TSCA 8b)

: All components are listed or exempted.

Canada inventory

: All components are listed or exempted.

Australia inventory (AICS)

: All components are listed or exempted.

China inventory (IECSC)

: All components are listed or exempted.

Japan inventory (ENCS)

: All components are listed or exempted.

Korea inventory (KECI)

: All components are listed or exempted.

Philippines inventory (PICCS)

: All components are listed or exempted.

16. OTHER INFORMATION**Full text of R-phrases referred to in sections 2 and 3 - United Kingdom (UK)**

: 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.

Full text of classifications referred to in sections 2 and 3 - United Kingdom (UK)

: Xi - Irritant
N - Dangerous for the environment

References

Epoxy Resins and Curing Agents; Toxicology, Health, Safety and Environmental Aspects (Plastics Europe, May 2006)

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.

Users of products supplied by Huntsman Advanced Materials should take appropriate measures to ensure working practices are in accordance with the Control of Substances Hazardous to Health Regulations (COSHH).

History

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16. OTHER INFORMATION

Version : 2

Indicates information that has changed from previously issued version.

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 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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