

# SAFETY DATA SHEET

ARALDITE 2015 RESIN(E)/HARZ

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

### Identification of the substance or mixture

**Product name** : ARALDITE 2015 RESIN(E)/HARZ  
**Product type** : Liquid.  
**Product description** : Preparation  
**Use of the substance/mixture** : Component for adhesive applications

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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)	25068-38-6	30 - 60	01-2119456619-26	Xi; R36/38 [1] R43
bisphenol F-epoxy resin	9003-36-5	13 - 30		N; R51/53 Xi; R36/38 [1] R43
butanedioldiglycidyl ether	2425-79-8	3 - 7		N; R51/53 Xn; R20/21 [1] Xi; R36/38 R43
bisphenol A - epoxy resins, number average MW >700 - <1100	25068-38-6	3 - 7		R52/53 Xi; R36/38 [1] R43
dipentaerythritol pentaacrylate	60506-81-2	1 - 3		Xi; R36 [1]

**Date of issue/Date of revision** : 1/25/2011.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

See section 16 for the full text of the R-phrases declared above

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

[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

Date of issue/Date of revision

: 1/25/2011.

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## 5. FIRE-FIGHTING MEASURES

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

### 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.	

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

### Exposure controls

**Occupational exposure controls** : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

**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.

**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.

**Hand protection** : Material of gloves for long term application (BTT>480min):  
**(BTT = Break Through Time)**  
 Ethyl Vinyl Alcohol Laminate (EVAL), butyl rubber  
 Material of gloves for short term/splash application (10min<BTT<480min):  
 neoprene, nitrile rubber  
 Use gloves approved to relevant standards e.g. EN 374 (Europe), F739 (US). Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material and dexterity. Always seek advice from glove suppliers.  
 Additional information can be found for instance at [www.gisbau.de](http://www.gisbau.de).

**Eye 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 or dusts.

**Skin 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.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### General information

#### Appearance

**Physical state** : Liquid. [Paste.]  
**Colour** : Beige.  
**Odour** : Slight

### Important health, safety and environmental information

**pH** : 6 to 7 [Conc. (% w/w): 50%]      Water      25      deg C  
**Boiling point** : >200°C (>392°F)  
**Flash point** : Closed cup: >150°C (>302°F) [DIN 51758 EN 22719 (Pensky-Martens Closed Cup)]  
**Decomposition temperature** : >200°C (>392°F)  
**Vapour pressure** : <0.0002 kPa (<0.0015 mm Hg) [20°C]      20      deg C  
**Density** : 1.4 g/cm<sup>3</sup> [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 2015 RESIN(E)/HARZ	LD50 Oral	Rat	>5000 mg/kg	-

**Conclusion/Summary** : Not available.

### Potential chronic health effects

#### Chronic toxicity

**Conclusion/Summary** : Not available.

#### Irritation/Corrosion

**Conclusion/Summary** : Not available.

### Sensitiser

Product/ingredient name	Route of exposure	Species	Result
ARALDITE 2015 RESIN(E)/HARZ	skin	Guinea pig	Sensitising

**Conclusion/Summary** : Not available.

## 11. TOXICOLOGICAL INFORMATION

### Carcinogenicity

Conclusion/Summary : Not available.

### Mutagenicity

Conclusion/Summary : Not available.

### Teratogenicity

Conclusion/Summary : Not available.

### Reproductive toxicity

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.

### 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

Conclusion/Summary : Not available.

### Biodegradability

Conclusion/Summary : Not available.

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\*

Date of issue/Date of revision : 1/25/2011.

**13. DISPOSAL CONSIDERATIONS**

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/F EPOXY RESIN**IMDG** : Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A/F 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/F EPOXY RESIN)

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

**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.

**Date of issue/Date of revision** : 1/25/2011.



**15. REGULATORY INFORMATION**

<b>Safety phrases</b>	: S24- Avoid contact with skin. S37- Wear suitable gloves. S61- Avoid release to the environment. Refer to special instructions/safety data sheet.
<b>Contains</b>	: reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700) bisphenol F-epoxy resin butanedioldiglycidyl ether bisphenol A - epoxy resins, number average MW >700 - <1100
<b>Exceptional labelling of special preparations</b>	: Contains epoxy constituents. See information supplied by the manufacturer.
<b><u>International regulations</u></b>	
<b><u>International lists</u></b>	
<b>Europe inventory</b>	: All components are listed or exempted.
<b>United States inventory (TSCA 8b)</b>	: All components are listed or exempted.
<b>Canada inventory</b>	: All components are listed or exempted.
<b>Australia inventory (AICS)</b>	: All components are listed or exempted.
<b>China inventory (IECSC)</b>	: All components are listed or exempted.
<b>Japan inventory (ENCS)</b>	: All components are listed or exempted.
<b>Korea inventory (KECI)</b>	: All components are listed or exempted.
<b>Philippines inventory (PICCS)</b>	: All components are listed or exempted.

**16. OTHER INFORMATION**

<b>Full text of R-phrases referred to in sections 2 and 3 - United Kingdom (UK)</b>	: R20/21- Harmful by inhalation and in contact with skin. R36- Irritating to eyes. R36/38- Irritating to eyes and skin. R43- May cause sensitisation by skin contact. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
<b>Full text of classifications referred to in sections 2 and 3 - United Kingdom (UK)</b>	: Xn - Harmful 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**

<b>Date of printing</b>	: 1/25/2011.
<b>Date of issue/ Date of revision</b>	: 1/25/2011.
<b>Date of previous issue</b>	: No previous validation.
<b>Version</b>	: 1

✔ Indicates information that has changed from previously issued version.

**Notice to reader**



## 16. OTHER INFORMATION

*While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.*

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

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

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

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8 am to 5 pm Phone: (800) 257-5547  
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Asia Pacific Emergency Phone: (65) 6336-6011

**Effective Date:** 10/15/10

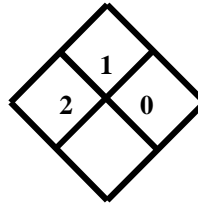
**Material Safety Data Sheet**

MSDS No: 5631

**1. PRODUCT IDENTIFICATION**

**Trade Name:** Araldite 2015/A

**Chemical Family:** Epoxy



NFPA RATING

<b>Health:</b>	<b>2</b>
<b>Flammability:</b>	<b>1</b>
<b>Reactivity:</b>	<b>0</b>
<b>Personal Protection:</b>	

HMIS RATING

**Intended Use or Product Type:** Toughened adhesive resin

**2. COMPOSITION / INFORMATION ON INGREDIENTS**

O S H A	CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS				MFR.	CARCINOGEN STATUS		
			ACGIH		OSHA			IARC	NTP	OSHA
			TWA	STEL	PEL	STEL				
*	1317-65-3	Limestone  Common Name: Calcium carbonate Concentration: 10.00 - 30.00 % by wt	10 mg/m3	NE	5 mg/m3	NE	NE	NR	NR	NR
*	14807-96-6	Talc  Common Name: Talc Concentration: 5.00 - 10.00 % by wt	2 mg/m3	NE	NE	NE	NE	NR	NR	NR
*	2425-79-8	Oxirane, 2,2'-[1,4-Butanediylbis(Oxymethylene)]bis-Butanediol diglycidyl ether  Common Name: Bisphenol A epoxy resin Concentration: 5.00 - 10.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	25068-38-6	Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane  Common Name: Bisphenol A epoxy resin Concentration: 30.00 - 60.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	60506-81-2	2-Propenoic acid, 2-[[[3-hydroxy-2,2-bis[[[(1-oxo-2-propenyl)oxy]methyl]propoxy]methyl]-2-[[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester  Concentration: 1.00 - 5.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	67762-90-7	Siloxanes and silicones, di-me,	NE	NE	NE	NE	NE	NR	NR	NR



Effective Date: 10/15/10

Common Name: Concentration	reaction products with silica Amorphous hydrophobic fumed silica 5.00 - 10.00 % by wt								
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NE = Not Established NR = Not Reviewed \* = OSHA Hazardous Ingredient

**3. HAZARDS IDENTIFICATION**

**Emergency Overview:** Can cause skin irritation, eye irritation, and allergic skin reaction. May be harmful if absorbed through skin or if swallowed.

**Primary Route(s) of Entry:** Dermal; heated product may produce inhalable vapors.

**4. FIRST AID MEASURES**

**Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

**Skin:** Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Destroy contaminated shoes. Seek immediate medical attention.

**Inhalation:** Remove to fresh air. Seek immediate medical attention.

**Eyes:** Immediately flush eyes with water for at least 15 minutes. Seek immediate medical attention.

**Overexposure Effects:** Can cause skin irritation, eye irritation, and allergic skin reaction. May be harmful if absorbed through skin or if swallowed.

**Medical Conditions Aggravated by Exposure:** Skin and eye conditions.

**Additional Information:** Referral to a physician is recommended if there is any question about the seriousness of any injury.

**5. FIRE FIGHTING MEASURES**

**Flash Point:** > 93°C (> 199 °F)

**Flash Point Method Used:** Estimated

**Flammable Limits in Air (Lower - % by volume):** Not established

**Flammable Limits in Air (Upper - % by volume):** Not established

**Fire Fighting Extinguishing Media:** Carbon dioxide, dry chemical, foam, water.

**Fire Fighting Equipment:** Use self-contained breathing apparatus.

**Fire and Explosion Hazards:** Decomposition and combustion products may be toxic.

**6. ACCIDENTAL RELEASE MEASURES**

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**Accidental Release Measures:** Remove spillage by absorbing in absorbent material.

## **7. HANDLING AND STORAGE**

**Signal Word:** Warning!

**Precautions:** Can cause skin irritation, eye irritation, and allergic skin reaction. May be harmful if absorbed through skin or if swallowed. Avoid contact with eyes, skin, and clothing. Avoid tasting or swallowing. Wash thoroughly after handling.

**Other Handling Information:** Crystalline silica may be generated when machining cured products. Overexposure may create possible cancer and silicosis hazard.

## **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Skin Protection:** Wear impermeable gloves.

**Respiratory Protection:** Use NIOSH approved organic vapor cartridge respirator when vapor/mist exposure is likely.

**Eye Protection:** Wear splash-proof chemical goggles.

**Engineering Controls:** General mechanical and local exhaust in accordance with ACGIH recommendations.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Color:</b>	Light Beige
<b>Odor:</b>	Slight
<b>Physical State:</b>	Paste
<b>Solubility in Water:</b>	Insoluble
<b>Vapor Pressure:</b>	Not Determined
<b>Specific Gravity:</b>	1.43 g/ml
<b>Boiling Point:</b>	Not Evaluated
<b>Melting Point:</b>	Not Evaluated
<b>Evaporation Rate:</b>	Not Evaluated
<b>Vapor Density:</b>	Not Determined
<b>VOC:</b>	Negligible
<b>pH:</b>	Not Evaluated
<b>Coefficient of water/oil:</b>	Not Evaluated

## **10. STABILITY AND REACTIVITY**

**Conditions to Avoid:** Excessive heat for prolonged periods of time.

**Stability:** Stable.

**Incompatibility:** Strong oxidizers, acids and bases.

**Hazardous Decomposition Products:** Combustion may form toxic materials, such as carbon dioxide, carbon monoxide.

**Hazardous Polymerization:** Will not occur.

Effective Date: 10/15/10

## 11. TOXICOLOGICAL INFORMATION

**Acute Oral Effects (LD50):** Component(s) are slightly toxic, 500 - 5000 mg/kg (rat).

Butanediol diglycidyl ether= 1134 mg/kg (rat)

**Acute Dermal Toxicity (LD50):** Component(s) are slightly toxic, 1000 - 2000 mg/kg (rabbit).

Butanediol diglycidyl ether= 1130 mg/kg (rabbit)

**Sensitization:** Possible in susceptible individuals.

**Skin Irritation:** Irritant.

**Eye Irritation:** Irritant.

**Reproduction:** For diglycidyl ether of bisphenol A- There were no treatment-related histologic changes noted nor effects on reproductive performance in rats at any oral dose tested.

**Teratogenicity:** For diglycidyl ether of bisphenol A- No adverse effects on embryonic or fetal development was observed in rabbits after dermal exposure.

**Mutagenicity:** For diglycidyl ether of bisphenol A- In vitro tests showed mutagenic effects which were not observed with in vivo tests.

Test results for 1,4-Butanediol diglycidyl ether:

Ames test: positive

Sister chromatid exchange (Chinese hamster): Negative

Nucleus anomaly (Chinese hamster): Positive

Mouse lymphoma: Positive with and without activation.

Mutagenicity results were reported to the EPA.

**Sub-Chronic:** Diglycidyl ether of bisphenol A, applied to the skin of rats five times per week for approximately 13 weeks, caused no apparent systemic toxicity with the exception of decreased body weight and body weight gain.

## 12. ECOLOGICAL INFORMATION

## 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Method:** Consult qualified local or corporate personnel for method that will comply with local, state and federal health and environmental regulations.

## 14. TRANSPORT INFORMATION

### **DOT: Non-Bulk**

**Proper Shipping Name:**

Environmentally hazardous substance, liquid, n.o.s.

**Technical Shipping Name (If n.o.s.):**

Bisphenol A epoxy resin

**Hazard Class:**

9

**ID Number:**

UN 3082

**Packing Group:**

PG III

**Marine Pollutant:**

Marine Pollutant

### **IATA: Non-Bulk**

Effective Date: 10/15/10

<b>Proper Shipping Name:</b>	Environmentally hazardous substance, liquid, n.o.s.
<b>Technical Shipping Name (If n.o.s.):</b>	Bisphenol A epoxy resin
<b>Hazard Class:</b>	9
<b>ID Number:</b>	UN 3082
<b>Packing Group:</b>	PG III
<b>Marine Pollutant:</b>	Marine Pollutant
<b>IMDG: Non-Bulk</b>	
<b>Proper Shipping Name:</b>	Environmentally hazardous substance, liquid, n.o.s.
<b>Technical Shipping Name (If n.o.s.):</b>	Bisphenol A epoxy resin
<b>Hazard Class:</b>	9
<b>ID Number:</b>	UN 3082
<b>Packing Group:</b>	PG III
<b>Marine Pollutant:</b>	Marine Pollutant
<b>TDG: Non-Bulk</b>	
<b>Proper Shipping Name:</b>	Environmentally hazardous substance, liquid, n.o.s.
<b>Technical Shipping Name (If n.o.s.):</b>	Bisphenol A epoxy resin
<b>Hazard Class:</b>	9
<b>ID Number:</b>	UN 3082
<b>Packing Group:</b>	PG III
<b>Marine Pollutant:</b>	Marine Pollutant

## 15. REGULATORY INFORMATION

### US Federal Regulations:

**Occupational Safety and Health Act (OSHA):** This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200. This product is considered to be a hazardous chemical under that standard.

**Resource Conservation and Recovery Act (RCRA):** Not a hazardous waste under RCRA (40 CFR 261).

**SARA Title III: Section 313 Toxic Chemical List (TCL):** This product does not contain any chemicals for routine annual toxic chemical release reporting under Section 313 (40 CFR 372).

**TSCA Section 8(b) - Inventory Status:** All chemical components of this product are in compliance with TSCA inventory requirements.

**TSCA Section 12(b) - Export Notification:** This product does not contain any chemical(s) that are subject to a Section 12(b) export notification.

### International Regulations:

**Canadian Inventory Status:** This product contains components which are included on the Domestic Substances List (DSL) and the Non-Domestic Substances List (NDSL).

**Canadian WHMIS:** 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. D2B

**European Inventory Status (EINECS):** This product contains only chemicals that are currently listed on the European Inventory of Existing Commercial Chemical Substances (EINECS).

Effective Date: 10/15/10

**Japanese Inventory Status:** This product contains only chemicals currently listed on the Japanese Ministry of International Trade and Industry List of Existing and New Chemical Substances.

### State Regulations:

**California Proposition 65:** The following is required composition information. This product contains the following chemical(s) which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

Chemical Name: Quartz (SiO<sub>2</sub>)

Common Name: Crystalline silica

CAS Number: 14808-60-7

Percent in Composition: 0.03 - 0.07 % by wt

Comment: Warning! This chemical is known to the State of California to cause cancer.

Chemical Name: Benzene, methyl-

Common Name: Toluene

CAS Number: 108-88-3

Percent in Composition: 0.001 - 0.002 % by wt

Comment: Warning! This chemical is known to the State of California to cause birth defects or other reproductive harm.

**Pennsylvania Right-to-Know:** The following is required composition information:

Chemical Name: Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane

Common Name: Bisphenol A epoxy resin

CAS Number: 25068-38-6

Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: Limestone

Common Name: Calcium carbonate

CAS Number: 1317-65-3

Comment: Hazardous Substance

Chemical Name: Talc

Common Name: Talc

CAS Number: 14807-96-6

Comment: Hazardous Substance

Chemical Name: Oxirane, 2,2'-[1,4-Butanediylbis(Oxymethylene)]bis-

Common Name: Butanediol diglycidyl ether

CAS Number: 2425-79-8

Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: Siloxanes and silicones, di-me, reaction products with silica

Common Name: Amorphous hydrophobic fumed silica

CAS Number: 67762-90-7

Comment: Not on Pennsylvania Hazardous Substance List

### 16. OTHER INFORMATION

**MSDS No:**

5631

**Reason Issued:**

10/10 update

**Approved By:**

Matt Austin

**Title:**

EHS Chemist



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**Effective Date: 10/15/10**

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**Other Information:** DLW/CA3 (D10020033) [D99]

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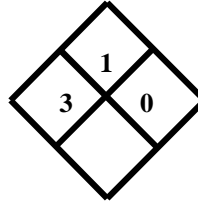
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The Woodlands, TX 77387-4980

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Asia Pacific Emergency Phone: (65) 6336-6011

**Effective Date:** 10/1/10**Material Safety Data Sheet**

MSDS No: 5632

**1. PRODUCT IDENTIFICATION****Trade Name:** Araldite 2015/B**Chemical Family:** Amine

NFPA RATING

<b>Health:</b>	<b>3*</b>
<b>Flammability:</b>	<b>1</b>
<b>Reactivity:</b>	<b>0</b>
<b>Personal Protection:</b>	

HMIS RATING

**Intended Use or Product Type:** Toughened adhesive hardener**2. COMPOSITION / INFORMATION ON INGREDIENTS**

O S H A	CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS			
			ACGIH		OSHA		MFR.	IARC	NTP	OSHA
			TWA	STEL	PEL	STEL				
*	111-40-0 Common Name: Concentration	1,2-Ethanediamine, N-(2-aminoethyl)- Diethylenetriamine 5.00 - 10.00 % by wt	1 ppm	NE	NE	NE	NE	NR	NR	NR
*	140-31-8 Common Name: Concentration	1-Piperazineethanamine N-Aminoethylpiperazine 1.00 - 5.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	67762-90-7 Common Name: Concentration	Siloxanes and silicones, di-me, reaction products with silica Amorphous hydrophobic fumed silica 1.00 - 5.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	68683-29-4 Common Name: Concentration	Pentanoic Acid, 4,4'-Azobis(4-Cyano-, polymer with 1,3-Butadiene, 1-Piperazine Ethanamine and 2-Propenenitrile) Synthetic Rubber 10.00 - 30.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	7727-43-7 Common Name: Concentration	Sulfuric acid, barium salt (1:1) Barium Sulfate 30.00 - 60.00 % by wt	10 mg/m3	NE	5 mg/m3	NE	NE	NR	NR	NR
*	90-72-2	Phenol, 2,4,6-tris[(dimethylamino)methyl]-	NE	NE	NE	NE	TLV 5 ppm	NR	NR	NR

Effective Date: 10/1/10

	Common Name: Concentration	2,4,6-tris(Dimethylaminomethyl)phenol 1.00 - 5.00 % by wt								
*	38640-62-9 Common Name: Concentration	Naphthalene, bis(1-methylethyl)-Diisopropylnaphthalene 10.00 - 30.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
	68951-85-9 Concentration	Fatty acids, tall-oil, polymers with bisphenol A, diethylenetriamine, epichlorohydrin and tetraethylenepentamine 5.00 - 10.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR

NE = Not Established NR = Not Reviewed \* = OSHA Hazardous Ingredient

**3. HAZARDS IDENTIFICATION**

**Emergency Overview:** Corrosive - causes skin and eye burns. Causes irritation if inhaled and can cause allergic respiratory reaction and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed.

**Primary Route(s) of Entry:** Dermal; heated product may produce inhalable vapors.

**Acute Exposure:** Corrosive. Causes skin and eye burns.

**4. FIRST AID MEASURES**

**Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

**Skin:** Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Destroy contaminated shoes. Seek immediate medical attention.

**Inhalation:** Remove to fresh air. Seek immediate medical attention.

**Eyes:** Immediately flush eyes with water for at least 15 minutes. Seek immediate medical attention.

**Overexposure Effects:** Corrosive - causes skin and eye burns. Causes irritation if inhaled and can cause allergic respiratory reaction and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed.

**Medical Conditions Aggravated by Exposure:** Skin, eye and pulmonary conditions.

**Additional Information:** Referral to a physician is recommended if there is any question about the seriousness of any injury.

**5. FIRE FIGHTING MEASURES**

<b>Flash Point:</b>	> 200°F (> 93 °C)
<b>Flash Point Method Used:</b>	Estimated
<b>Flammable Limits in Air (Lower - % by volume):</b>	Not established
<b>Flammable Limits in Air (Upper - % by volume):</b>	Not established

Effective Date: 10/1/10

**Fire Fighting Extinguishing Media:** Carbon dioxide, dry chemical, foam, water.

**Fire Fighting Equipment:** Use self-contained breathing apparatus.

**Fire and Explosion Hazards:** Decomposition and combustion products may be toxic.

## **6. ACCIDENTAL RELEASE MEASURES**

**Accidental Release Measures:** Remove spillage by absorbing in absorbent material.

## **7. HANDLING AND STORAGE**

**Signal Word:** Danger!

**Precautions:** Corrosive - causes skin and eye burns. Causes irritation if inhaled and can cause allergic respiratory reaction and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed. Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or mist. Avoid tasting or swallowing. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling. Notice! Overexposure may have effects on developing fetus.

**Other Handling Information:** Nuisance dust may be generated when sanding or sawing cured material.

## **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Skin Protection:** Wear impermeable gloves.

**Respiratory Protection:** Use NIOSH approved organic vapor cartridge respirator when vapor/mist exposure is likely.

**Eye Protection:** Wear splash-proof chemical goggles.

**Engineering Controls:** General mechanical and local exhaust in accordance with ACGIH recommendations.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Color:</b>	Caramel Color
<b>Odor:</b>	Ammoniacal
<b>Physical State:</b>	Thixotropic Paste
<b>Solubility in Water:</b>	psi Not Determined
<b>Vapor Pressure:</b>	Not Determined
<b>Specific Gravity:</b>	1.381 g/ml (water = 1)
<b>Boiling Point:</b>	Not Evaluated
<b>Melting Point:</b>	Not Evaluated
<b>Evaporation Rate:</b>	Not Determined
<b>Density:</b>	Not Determined
<b>Vapor Density:</b>	Not Determined
<b>VOC:</b>	Negligible
<b>pH:</b>	Not Evaluated
<b>Coefficient of water/oil:</b>	Not Evaluated

Effective Date: 10/1/10

**10. STABILITY AND REACTIVITY****Conditions to Avoid:** Excessive heat for prolonged periods of time.**Stability:** Stable.**Incompatibility:** Strong oxidizers, acids and bases.**Hazardous Decomposition Products:** Combustion may form toxic materials, such as carbon dioxide, carbon monoxide.**Hazardous Polymerization:** Will not occur.**11. TOXICOLOGICAL INFORMATION****Acute Oral Effects (LD50):** Component(s) are slightly toxic, 500 - 5000 mg/kg (rat).

Diethylenetriamine= 1080 - 2330 mg/kg (rat)

Aminoethylpiperazine= 2140 mg/kg (rat)

Diisopropyl naphthalene= &gt;3900 mg/kg (rat)

**Acute Dermal Toxicity (LD50):** Component(s) are toxic, 200 - 1000 mg/kg (rabbit).

Diethylenetriamine= 672 - 1240 mg/kg (rabbit)

Aminoethylpiperazine= 880 mg/kg (rabbit)

**Acute Inhalation Exposure Effects:** Respiratory irritant.**Sensitization:** May cause allergic skin reaction and respiratory sensitivity in some people.**Skin Irritation:** Corrosive. Causes burns.**Eye Irritation:** Corrosive. Causes burns.**12. ECOLOGICAL INFORMATION****13. DISPOSAL CONSIDERATIONS****Waste Disposal Method:** Consult qualified local or corporate personnel for method that will comply with local, state and federal health and environmental regulations.**14. TRANSPORT INFORMATION****DOT: Non-Bulk**

<b>Proper Shipping Name:</b>	Polyamines, liquid, corrosive, N.O.S.
<b>Technical Shipping Name (If n.o.s.):</b>	Diethylene triamine
<b>Hazard Class:</b>	8
<b>ID Number:</b>	UN 2735
<b>Packing Group:</b>	PG III
<b>Label:</b>	Corrosive

**IATA: Non-Bulk**

<b>Proper Shipping Name:</b>	Polyamines, liquid, corrosive, N.O.S.
<b>Technical Shipping Name (If n.o.s.):</b>	Diethylene triamine

Effective Date: 10/1/10

<b>Hazard Class:</b>	8
<b>ID Number:</b>	UN 2735
<b>Packing Group:</b>	PG III
<b>Label:</b>	Corrosive
<b>IMDG: Non-Bulk</b>	
<b>Proper Shipping Name:</b>	Polyamines, liquid, corrosive, N.O.S.
<b>Technical Shipping Name (If n.o.s.):</b>	Diethylene triamine
<b>Hazard Class:</b>	8
<b>ID Number:</b>	UN 2735
<b>Packing Group:</b>	PG III
<b>Label:</b>	Corrosive
<b>TDG: Non-Bulk</b>	
<b>Proper Shipping Name:</b>	Polyamines, liquid, corrosive, N.O.S.
<b>Technical Shipping Name (If n.o.s.):</b>	Diethylene triamine
<b>Hazard Class:</b>	8
<b>ID Number:</b>	UN 2735
<b>Packing Group:</b>	PG III
<b>Label:</b>	Corrosive

## 15. REGULATORY INFORMATION

### US Federal Regulations:

**Occupational Safety and Health Act (OSHA):** This product is considered to be a hazardous chemical under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Resource Conservation and Recovery Act (RCRA):** Not a hazardous waste under RCRA (40 CFR 261) but handle with care due to corrosive effect on skin and eyes.

**SARA Title III: Section 304 - CERCLA:** This product does not contain any chemicals regulated under Section 304 (40 CFR 302) as hazardous chemicals for emergency release notification ("CERCLA" List).

**SARA Title III: Section 313 Toxic Chemical List (TCL):** This product does not contain any chemicals for routine annual toxic chemical release reporting under Section 313 (40 CFR 372).

**TSCA Section 8(b) - Inventory Status:** All chemical components of this product are in compliance with TSCA inventory requirements.

**TSCA Section 12(b) - Export Notification:** This product does not contain any chemical(s) that are subject to a Section 12(b) export notification.

### International Regulations:

**Australian Inventory Status:** This product contains one or more chemicals currently not on the Australian Inventory of Chemical Substances.

**Canadian Inventory Status:** This product contains only chemicals that are currently listed on the Canadian Domestic Substance List.

**Canadian WHMIS:** 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. D2B E

Effective Date: 10/1/10

**European Inventory Status (EINECS):** This product contains one or more chemicals currently not on the European Inventory of Existing Commercial Chemical Substances (EINECS) or Pre-market notified.

**Japanese Inventory Status:** This product contains one or more chemicals currently not on the Japanese Ministry of International Trade and Industry List of Existing and New Chemical Substances.

### State Regulations:

**California Proposition 65:** The following is required composition information. This product contains the following chemical(s) which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

Chemical Name: Quartz (SiO<sub>2</sub>)  
Common Name: Crystalline silica  
CAS Number: 14808-60-7  
Percent in Composition: 0.01 - 0.05 % by wt  
Comment: Warning! This chemical is known to the State of California to cause cancer.

**Pennsylvania Right-to-Know:** The following is required composition information:

Chemical Name: Sulfuric acid, barium salt (1:1)  
Common Name: Barium Sulfate  
CAS Number: 7727-43-7  
Comment: Hazardous Substance

Chemical Name: Pentanoic Acid, 4,4'-Azobis(4-Cyano-, polymer with 1,3-Butadiene, 1-Piperazine Ethanamine and 2-Propenenitrile)  
Common Name: Synthetic Rubber  
CAS Number: 68683-29-4  
Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: Naphthalene, bis(1-methylethyl)-  
Common Name: Diisopropylnaphthalene  
CAS Number: 38640-62-9  
Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: Fatty acids, tall-oil, polymers with bisphenol A, diethylenetriamine, epichlorohydrin and tetraethylenepentamine  
CAS Number: 68951-85-9  
Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: 1,2-Ethanediamine, N-(2-aminoethyl)-  
Common Name: Diethylenetriamine  
CAS Number: 111-40-0  
Comment: Hazardous Substance

Chemical Name: 1-Piperazineethanamine  
Common Name: N-Aminoethylpiperazine  
CAS Number: 140-31-8  
Comment: Hazardous Substance

## 16. OTHER INFORMATION

MSDS No: 5632

Printed: 10/18/2010

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Effective Date: 10/1/10

**Reason Issued:** 9/10 update  
**Approved By:** Matt Austin  
**Title:** EHS Chemist

**Other Information:** BLW/CA1 (B10020031) [B42]

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