

# SAFETY DATA SHEET

Version: 4.0  
Date of Issue: 08 May 2017  
Date of First Issue: 20 March 2012


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ACCORDING TO OSHA HCS (29 CFR 1910.1200)

## SECTION 1: IDENTIFICATION

Product identifier used on the label	M-Bond AE Resin	
Other means of identification	Not applicable	
Recommended use of the chemical and restrictions on use		
Recommended use	Adhesives.	
Restrictions on use	None known.	
Details of the supplier of the safety data sheet		
Supplier	VISHAY MEASUREMENTS GROUP, INC.	
Address of Supplier	Post Office Box 27777 Raleigh, NC 27611 USA	
Telephone	+1 919-365-3800	
Fax	+1 919-365-3945	
E-Mail (competent person)	<a href="mailto:mm.us@vishaypg.com">mm.us@vishaypg.com</a>	
Emergency telephone number	1-800-424-9300	CHEMTREC (24 hours)

## SECTION 2: HAZARD(S) IDENTIFICATION

Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200	
Physical hazards	Not classified
Health hazards	Skin Corrosion/Irritation, Category 2 Skin Sensitisation, Category 1 Eye Damage, Category 1 Germ cell mutagenicity, Category 2 Specific target organ toxicity — single exposure, Category 1 Specific target organ toxicity — single exposure, Category 2 Hazardous to the aquatic environment, Chronic, Category 3
Environmental hazards	
Hazard Symbol	
Signal Word(s)	DANGER
Hazard Statement(s)	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Suspected of causing genetic defects. Causes damage to organs (CNS and blood effects - Oral). May cause damage to organs (Respiratory tract - Oral). Harmful to aquatic life with long lasting effects.
Precautionary Statement(s)	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapour. Wash hands and exposed skin thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

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lenses, if present and easy to do. Continue rinsing.  
Immediately call a POISON CENTER/doctor.  
IF ON SKIN: Wash with plenty of water.  
If skin irritation or rash occurs: Get medical advice/attention.  
IF exposed: Call a POISON CENTER or doctor/physician.

**Other hazards** None known

**Percent of the mixture consists of ingredient(s) of unknown acute toxicity:** 0%

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Substances** Not applicable

**Mixtures** Substances in preparations / mixtures

Chemical identity of the substance	%WW	CAS No.	EC No.	Hazard classification
Bis-[4-(2,3-epoxypropoxy)phenyl] propane	< 75	1675-54-3	216-823-5	Skin Corrosion/Irritation, Category 2 Skin Sensitisation, Category 1 Eye Irritation, Category 2
Bisphenol A Diglycidyl Ether	15 – 25	25085-99-8	-	Skin Corrosion/Irritation, Category 2 Skin Sensitisation, Category 1 Hazardous to the aquatic environment, Chronic, Category 2
2,3-Epoxypropyl o-tolyl ether	< 5	2210-79-9	218-645-3	Skin Corrosion/Irritation, Category 2 Skin Sensitisation, Category 1 Germ cell mutagenicity, Category 2 Hazardous to the aquatic environment, Chronic, Category 2
Resorcinol	< 5	108-46-3	203-585-2	Acute toxicity, Category 4 – Oral Skin Corrosion/Irritation, Category 2 Eye Damage, Category 1 Skin Sensitisation, Category 1B Specific target organ toxicity — single exposure, Category 1 Specific target organ toxicity — single exposure, Category 2 Hazardous to the aquatic environment, Acute, Category 1 Hazardous to the aquatic environment, Chronic, Category 1

## SECTION 4: FIRST AID MEASURES



### Description of first aid measures

Self-protection of the first aider

Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Ensure adequate ventilation. Avoid all contact. Do not breathe vapour.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF exposed or concerned: Get medical advice/attention.

Skin Contact

IF ON SKIN: Remove contaminated clothing and wash all affected areas with plenty of water. If irritation (redness, rash, blistering) develops, get medical attention. IF exposed or concerned: Get medical advice/attention.

Eye Contact

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/doctor.

Ingestion

IF SWALLOWED: Rinse mouth. Make victim drink plenty of water. Do not induce vomiting unless instructed to do so by medical personnel. Call a POISON

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**Most important symptoms and effects, both acute and delayed**

CENTER/doctor if you feel unwell. IF exposed or concerned: Get medical advice/attention.

**Indication of any immediate medical attention and special treatment needed**

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Suspected of causing genetic defects. Causes damage to organs (CNS and blood effects - Oral). May cause damage to organs (Respiratory tract - Oral).

Notes to a physician:

Treat symptomatically.

IF IN EYES: Obtain prompt consultation, preferably from an ophthalmologist. Following severe exposure the patient should be kept under medical review for at least 48 hours.

## SECTION 5: FIRE-FIGHTING MEASURES

**Extinguishing media**

Suitable Extinguishing Media

As appropriate for surrounding fire. Extinguish with carbon dioxide, dry chemical, foam or waterspray.

Unsuitable extinguishing Media

Do not use water jet. Direct water jet may spread the fire.

**Special hazards arising from the substance or mixture**

May decompose in a fire giving off toxic fumes. Decomposes in a fire giving off toxic fumes: Phenolics, Carbon monoxide and Carbon dioxide.

**Special protective equipment and precautions for fire fighters**

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation. Stop leak if safe to do so. Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe vapour. Avoid all contact. Do not ingest. If swallowed then seek immediate medical assistance. Isolate the area and allow vapours to disperse.

**Environmental precautions**

Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.

**Methods and material for containment and cleaning up**

Absorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a container for disposal. Ventilate the area and wash spill site after material pick-up is complete. Dispose of this material and its container as hazardous waste

## SECTION 7: HANDLING AND STORAGE

**Precautions for safe handling**

Avoid all contact. Do not breathe vapour. Ensure adequate ventilation. Wear appropriate personal protective equipment, avoid direct contact. Use personal protective equipment as required. See Section: 8. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Contaminated clothing should be laundered before reuse.

**Conditions for safe storage, including any incompatibilities**

Store in a well-ventilated place. Keep container tightly closed. Keep cool. Keep away from heat, sources of ignition and direct sunlight.

Storage temperature

Ambient. Keep at temperature not exceeding (°C): 27

Storage life

Stable under normal conditions.

Incompatible materials

Keep away from: Flammable liquids, Strong Oxidizing agents, Corrosive Substances, Strong Acids and strong mineral and organic bases, especially primary and secondary aliphatic amines.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Occupational Exposure Limits

No OSHA permissible exposure limit (PEL).

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m <sup>3</sup> )	STEL (ppm)	STEL (mg/m <sup>3</sup> )	Note
1,3-Benzenediol (Resorcinol)	108-46-3	10	45	20	90	NIOSH
		10	-	20	-	ACGIH, A4

Note: OSHA PELs 1910.1000 TABLE Z-1/ NIOSH RELs / ACGIH TLVs

A4: Not Classifiable as a Human Carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of the lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.

The other components listed in Section 3 do not have occupational exposure limits.

### Biological Exposure Indices

Not established

### Appropriate engineering controls

Ensure adequate ventilation or use appropriate containment. Atmospheric levels should be controlled in compliance with the occupational exposure limit. A washing facility/water for eye and skin cleaning purposes should be present.

### Individual protection measures, such as personal protective equipment (PPE)

General hygiene measures for the handling of chemicals are applicable. Avoid all contact. Do not breathe vapour. Wash hands before breaks and after work. Keep work clothes separately. Contaminated clothing should be laundered before reuse. Do not eat, drink or smoke at the work place.

#### Eye/face protection



Wear protective eye glasses for protection against liquid splashes. Wear eye protection with side protection (EN166).

#### Skin protection



#### Hand protection:

Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.

#### Body protection:

Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

#### Respiratory protection



In case of inadequate ventilation wear respiratory protection. Open system(s): Wear suitable respiratory protective equipment.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Clear - Amber Coloured liquid.
Odor	Faint Epoxy Odour
Odor Threshold	Not available.
pH	Not established.
Melting Point/Freezing Point	Not available.

# SAFETY DATA SHEET

Version: 4.0

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ACCORDING TO OSHA HCS (29 CFR 1910.1200)

Initial boiling point and boiling range	Not available.
Flash Point	Not available.
Evaporation rate (Butyl acetate = 1)	Not available.
Flammability (solid, gas)	Not applicable - Liquid
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	1 @ 118°C (mmHg)
Vapour density	>3.8 (Air = 1)
Relative density	1.15 (H <sub>2</sub> O = 1)
Solubility(ies)	The substance is essentially insoluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.

## SECTION 10: STABILITY AND REACTIVITY

<b>Reactivity</b>	Stable under normal conditions.
<b>Chemical stability</b>	Stable under normal conditions. May decompose if heated.
<b>Possibility of hazardous reactions</b>	Hazardous polymerisation will not occur.
<b>Conditions to avoid</b>	Keep away from heat, sources of ignition and direct sunlight. Keep at temperature not exceeding (°C): 27
<b>Incompatible materials</b>	Flammable liquids, Strong Oxidizing agents, Corrosive Substances, Strong Acids and strong mineral and organic bases, especially primary and secondary aliphatic amines.
<b>Hazardous decomposition product(s)</b>	Decomposes in a fire giving off toxic fumes: Phenolics, Carbon monoxide and Carbon dioxide.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on toxicological effects (Substances in preparations / mixtures)

<b>Acute toxicity - Ingestion</b>	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day. LD50 (oral,rat) mg/kg: 510 (OECD 401)
Resorcinol: <b>Acute toxicity - Inhalation</b>	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 20.0 mg/l.
<b>Acute toxicity - Skin Contact</b>	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.
<b>Skin corrosion/irritation</b>	Skin Corrosion/Irritation, Category 2; Causes skin irritation. Resorcinol: Test Result: Irritating to skin. ( <i>in vivo</i> ; FHSLA)
<b>Serious eye damage/irritation</b>	Eye Damage, Category 1; Causes serious eye damage. Resorcinol: Test Result: Causes serious eye damage. ( <i>in vivo</i> ; FHSLA)
<b>Respiratory or skin sensitization</b>	Skin Sensitisation, Category 1: May cause an allergic skin reaction. 2,3-Epoxypropyl o-tolyl ether: Test Result: Positive (OECD 406) Resorcinol: Test Result: Positive (OECD 429)
<b>Germ cell mutagenicity</b>	Germ cell mutagenicity, Category 2: Suspected of causing genetic defects. 2,3-Epoxypropyl o-tolyl ether: Test Result: Positive (OECD 471)
<b>Carcinogenicity</b>	Based upon the available data, the classification criteria are not met.
<b>Reproductive toxicity</b>	Based upon the available data, the classification criteria are not met.
<b>STOT - single exposure</b>	Specific target organ toxicity — single exposure, Category 1; Causes damage to organs. - oral Specific target organ toxicity — single exposure, Category 2; May cause damage to organs - oral. Resorcinol: NOAEL 80 mg/kg bw/day (OECD 408)
Resorcinol: <b>STOT - repeated exposure</b>	Based upon the available data, the classification criteria are not met.
<b>Aspiration hazard</b>	Based upon the available data, the classification criteria are not met.

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ACCORDING TO OSHA HCS (29 CFR 1910.1200)

## Information on likely routes of exposure

Inhalation	Possible – accidental exposure
Ingestion	Unlikely – accidental exposure
Skin Contact	Possible – accidental exposure
Eye Contact	Unlikely – accidental exposure

## Early onset symptoms related to exposure

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Suspected of causing genetic defects. Causes damage to organs (CNS and blood effects - Oral). May cause damage to organs (Respiratory tract - Oral).

## Delayed health effects from exposure

Symptoms of poisoning may be delayed for several days.

## Other information

NTP Report on Carcinogens	All chemicals are not listed
IARC Monographs	Bis-[4-(2,3-epoxipropoxy)phenyl]propane: Group 3
OSHA Designated Carcinogen	All chemicals are not listed

## SECTION 12: ECOLOGICAL INFORMATION

### Ecotoxicity

Aquatic Chronic 3: Harmful to aquatic life with long lasting effects.

2,3-Epoxypropyl o-tolyl ether:

Estimated Mixture LC50 1 to ≤ 10 mg/l (Fish)

Resorcinol:

LC50 (fish) mg/l 2.8 – 5.1 (OECD 203)

### Persistence and degradability

EC50 (Daphnia magna) mg/l 1 (OECD 202)

### Bioaccumulative potential

Part of the components are poorly biodegradable.

### Mobility in soil

The product has low potential for bioaccumulation.

### Other adverse effects

The product is predicted to have low mobility in soil (Insoluble in water).

None known.

## SECTION 13: DISPOSAL CONSIDERATIONS

### Waste treatment methods

This material and its container must be disposed of as hazardous waste. Send after pre-treatment to a appropriate hazardous waste incinerator facility according to legislation.

### Additional Information

Dispose of contents in accordance with local, state or national legislation.

## SECTION 14: TRANSPORT INFORMATION

(Not classified according to the United Nations 'Recommendations on the Transport of Dangerous Goods')

	ADR/RID	IMDG	IATA
UN number	Not applicable	Not applicable	Not applicable
UN proper shipping name	Not applicable	Not applicable	Not applicable
Transport hazard class(es)	Not applicable	Not applicable	Not applicable
Packing group	Not applicable	Not applicable	Not applicable
Environmental hazards	Not classified	Not classified as a Marine Pollutant/ Environmentally hazardous substance	Not classified
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	See Section: 2		
Special precautions for user	Not applicable		

## SECTION 15: REGULATORY INFORMATION

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### US Federal Regulations

TSCA (Toxic Substance Control Act)

Bis-[4-(2,3-epoxipropoxy)phenyl]propane: Subject to 25,000 lb reporting

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	threshold
	Bisphenol A Diglycidyl Ether (MW <700): Exempt from reporting under CDR
	2,3-Epoxypropyl o-tolyl ether: Subject to 25,000 lb reporting threshold
EPCRA/SARA Section 302 Extremely Hazardous Substances	All chemicals are not listed
EPCRA Section 313 Toxics Release Inventory (TRI) Program	All chemicals are not listed
NIOSH Occupational Carcinogen List	All chemicals are not listed
OSHA List of highly hazardous chemicals, toxics and reactives	All chemicals are not listed
NTP Report on Carcinogens (RoC) List	All chemicals are not listed
Poison Prevention Packaging Act	All chemicals are not listed
<b>US State Regulations</b>	
California State, Proposition 65 List	All chemicals are not listed
California State, Safer Consumer Products Regulations	All chemicals are not listed
Maine State, Toxic Chemicals in Children's Products Act	All chemicals are not listed
New Jersey State Worker and Community RTK Act	All chemicals are not listed
Pennsylvania State, Worker and Community RTK Act	All chemicals are not listed
Rhode Island State, Hazardous Substances RTK Act	All chemicals are not listed
<b>Non-Regional</b>	
IARC Monographs, List of Classifications	Bis-[4-(2,3-epoxypropoxy)phenyl]propane: Group 3

## SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Updated substance / mixture classification. New SDS Regulation compliant with HazCom 2012 format, all sections have been updated to include new information. Please review SDS with care.

Version 4.0  
Revision Date 08 May 2017  
Date of First Issue 20 March 2012

### References:

Existing Safety Data Sheet (SDS), EU Data: Harmonised Classification(s) for Bis-[4-(2,3-epoxypropoxy)phenyl]propane (CAS No. 1675-54-3), 2,3-Epoxypropyl o-tolyl ether (CAS No. 2210-79-9) and Resorcinol (CAS No. 108-46-3). Existing ECHA registration(s) for 2,3-Epoxypropyl o-tolyl ether (CAS No. 2210-79-9) and Resorcinol (CAS No. 108-46-3), and the Classification and Labelling Inventory for Bisphenol A Diglycidyl Ether (CAS No. 25085-99-8).

GHS Classification of the substance or mixture	Classification Procedure
Skin Corrosion/Irritation, Category 2	Threshold Calculation
Skin Sensitisation, Category 1	Threshold Calculation
Eye Damage, Category 1	Threshold Calculation
Germ cell mutagenicity, Category 2	Threshold Calculation
Specific target organ toxicity — single exposure, Category 1	Threshold Calculation
Specific target organ toxicity — single exposure, Category 2	Threshold Calculation
Hazardous to the aquatic environment, Chronic, Category 3	Summation Calculation

### LEGEND

ACGIH: American Conference of Governmental Industrial Hygienists  
BEI: Biological Exposure Indices (ACGIH)  
IARC: International Agency for Research on Cancer  
Irr: Irritation  
NIOSH: National Institute of Occupational Safety and Health  
NTP: National Toxicology Program  
OSHA: The Occupational Safety & Health Administration  
PBT: Persistent, Bioaccumulative and Toxic  
PEL: Permissible exposure limit

REL: Recommended exposure limit  
SCL: Specific Concentration Limit  
Skin<sup>o</sup>: Risk of overexposure via dermal contact  
STEL: Short Term Exposure Limit  
TLV: Threshold Limit value  
TSCA: Toxic Substance Control Act  
TWA: Time Weighted Average  
URT: Upper respiratory tract  
vPvB: very Persistent and very Bioaccumulative

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Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

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