SAFETY DATA SHEET

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ACCORDING TO OSHA HCS (29 CFR 1910.1200)

SECTION 1: IDENTIFICATION

Product identifier used on the label M-Bond GA-2 Resin

Other means of identification Not Applicable.

Recommended use of the chemical and restrictions on use

Recommended use: Adhesives.
Restrictions on use: Anything other than the above.

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): mm.us@vishaypg.com

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, Category 1C
Eye Damage, Category 1
Skin Sensitisation, Category 1
Reproductive toxicity, Category 1B
Environmental hazards: Hazardous to the aquatic environment, Chronic, Category 2

Hazard Symbol

Signal Word(s): Danger

Hazard Statement(s):
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
Toxic 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 SWALLOWED: rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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.
IF exposed or concerned: Get medical advice/attention.

Other hazards None.

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	%W/W	CAS No.	EC No.	Hazard classification
Limestone	30 – 35	1317-65-3	215-279-6	Not classified
2-Ethyl-2-(hydroxymethyl)-1,3-Propanediol polymer with (chloromethyl)oxirane	27 - 32	30499-70-8	-	Skin Corrosion, Category 1C Eye Damage, Category 1 Skin Sensitisation, Category 1B Reproductive toxicity, Category 1B Hazardous to the aquatic environment, Chronic, Category 2
reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)	15 – 20	25068-38-6	500-033-5	Skin Irritation, Category 2 (SCL ≥ 5%) Skin Sensitisation, Category 1 Eye Irritation, Category 2 (SCL ≥ 5%) Hazardous to the aquatic environment, Chronic, Category 2

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. Avoid exposure during pregnancy.

Inhalation: IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Skin Contact: IF ON SKIN (or hair): Take off contaminated clothing and wash before reuse. Rinse skin immediately with plenty of water for 15-20 minutes. If irritation (redness, rash, blistering) develops, get medical attention.

Eye Contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Hold eye open and rinse slowly and gently with water for 15-20 minutes. Immediately call a POISON CENTER/doctor.

Ingestion: IF SWALLOWED: Rinse mouth. Make victim drink plenty of water. Do NOT induce vomiting. Call a POISON CENTER/doctor if you feel unwell. IF exposed or concerned: Get medical advice/attention.

Most important symptoms and effects, both acute and delayed Causes severe skin burns and eye damage. May cause an allergic skin reaction. May damage fertility or the unborn child.

Indication of any immediate medical attention and special treatment needed Treat symptomatically.

Notes to a physician: IF IN EYES: Obtain prompt consultation, preferably from an ophthalmologist.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media	
Suitable Extinguishing Media	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. Carbon monoxide, Carbon dioxide, Phenolics.
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. Prevent liquid entering sewers, basements and workpits; vapour may create explosive atmosphere. May form explosive peroxides.

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.
Methods and material for containment and cleaning up	Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a container for disposal. Dispose of this material and its container as hazardous waste.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. 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 away from direct sunlight.
Storage temperature	Ideal storage temperature is (°C): <30°C
Incompatible materials	Reacts violently with - Strong oxidising agents, Alkalis, Acids and Amines.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Limestone (Calcium carbonate)	1317-65-3	-	10	-	-	NIOSH
		-	5	-	-	Total dust Respirable dust
		-	15	-	-	OSHA
		-	5	-	-	Total dust Respirable dust

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

*The 8-hour TWA listed in the Table is for the total dust. The substance also has an 8-hour TWA of 3 mg/m 3 for the respirable fraction.

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 goggles giving complete protection to eyes to protect against liquid splashes.
Skin protection 	**Hand protection:** Wear impervious gloves (EN374). Breakthrough time of the glove material: refer to the information provided by the gloves' producer. Gloves should be changed regularly to avoid permeation problems. Protective index 6, corresponding > 480 minutes of permeation time. Recommended: Butyl rubber, Nitrile rubber, Neoprene, Polyvinyl chloride - PVC. **Skin protection:** Wear suitable coveralls to prevent exposure to the skin.
Respiratory protection 	In case of inadequate ventilation wear respiratory protection. A suitable dust mask or dust respirator with filter type A/P may be appropriate.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Black Liquid
Odor	Ether-like Odour
Odor Threshold	Not available.
pH	Not established.
Melting Point/Freezing Point	ca. 320°C (bisphenol-A-(epichlorhydrin))
Initial boiling point and boiling range	>260°C (Mixture)
Flash Point	>93°C [Closed cup]
Evaporation rate (Butyl acetate = 1)	<1
Flammability (solid, gas)	Non-flammable
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	<0.1 mmHg @ 20°C
Vapour density	Not available.
Relative density	1.51 g/cm^3 (H2O = 1) (Mixture)
Solubility(ies)	Slightly soluble in: Water (Mixture)
Partition coefficient: n-octanol/water	log Pow >= 2.918 (bisphenol-A-(epichlorhydrin))
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.

Other information None.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Epoxy resins release phenolics, carbon monoxide, and water.
Conditions to avoid	Avoid contact with heat and ignition sources and oxidizers.
Incompatible materials	Reacts violently with - Strong oxidising agents, Alkalis, Acids and Amines
Hazardous decomposition product(s)	May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide, Phenolics.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects (Substances in preparations / mixtures)

Acute toxicity - Ingestion	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.
Acute toxicity - Inhalation	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 20.0 mg/l.
Acute toxicity - Skin Contact	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.
Skin corrosion/irritation	Skin Corrosive, Category 1C: Causes severe skin burns and eye damage.
2-Ethyl-2-(hydroxymethyl)-1,3- Propanediol polymer with (chloromethyl)oxirane:	Test Result: Corrosive (EPA OTS 798.4470 (Acute Dermal Irritation)
reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700):	Test Result: Irritating to skin. (OECD 404)
Serious eye damage/irritation	Eye Damage, Category 1: Causes serious eye damage.
2-Ethyl-2-(hydroxymethyl)-1,3- Propanediol polymer with (chloromethyl)oxirane:	Test Result: Causes serious eye damage. Source A (1965) See Section: 16
reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700):	No data. EU Harmonised Classification
Respiratory or skin sensitization	Skin Sensitisation, Category 1: May cause an allergic skin reaction.
2-Ethyl-2-(hydroxymethyl)-1,3- Propanediol polymer with (chloromethyl)oxirane:	No data.
reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700):	Test Result: Positive (OECD 429)
Germ cell mutagenicity	Based upon the available data, the classification criteria are not met.
Carcinogenicity	Based upon the available data, the classification criteria are not met.
Reproductive toxicity	Reproductive Toxicity, Category 1B: May damage fertility or the unborn child.
2-Ethyl-2-(hydroxymethyl)-1,3- Propanediol polymer with (chloromethyl)oxirane:	NOAEL 300 mg/kg bw/day (OECD 422)
STOT - single exposure	Based upon the available data, the classification criteria are not met.
STOT - repeated exposure	Based upon the available data, the classification criteria are not met.
Aspiration hazard	Based upon the available data, the classification criteria are not met.

Information on likely routes of exposure

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

Early onset symptoms related to exposure Causes severe skin burns and eye damage. May cause an allergic skin reaction.

Delayed health effects from exposure May damage fertility or the unborn child.

Other information

NTP Report on Carcinogens	Not listed.
IARC Monographs	Not listed.

OSHA Designated Carcinogen	Not listed.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic Chronic 2: Harmful to aquatic life with long lasting effects. Estimated Mixture LC50 > 1 to ≤ 10 mg/l (Fish)
2-Ethyl-2-(hydroxymethyl)-1,3- Propanediol polymer with (chloromethyl)oxirane:	No data.
reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700):	No data. EU Harmonised Classification
Persistence and degradability	Part of the components are biodegradable.
Bioaccumulative potential	The product has low potential for bioaccumulation.
Mobility in soil	The product is predicted to have low mobility in soil.
Other adverse effects	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

	ADR/RID	**IMDG**	**IATA**
UN number	1760	1760	1760
UN proper shipping name	CORROSIVE LIQUID N.O.S (2-Ethyl-2-(hydroxymethyl)-1,3-Propanediol polymer with (chloromethyl)oxirane)	CORROSIVE LIQUID N.O.S (2-Ethyl-2-(hydroxymethyl)-1,3-Propanediol polymer with (chloromethyl)oxirane)	CORROSIVE LIQUID N.O.S (2-Ethyl-2-(hydroxymethyl)-1,3-Propanediol polymer with (chloromethyl)oxirane)
Transport hazard class(es)	8	8	8
Packing group	III	III	III
Environmental hazards	Environmentally hazardous substance	Marine Pollutant	Environmentally hazardous substance
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.		
Special precautions for user	See Section: 2		

SECTION 15: REGULATORY INFORMATION

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

US Federal Regulations	
TSCA (Toxic Substance Control Act)	Limestone – Subject to 25,000 lb reporting threshold.
EPCRA/SARA Section 302 Extremely Hazardous Substances	Not listed.
EPCRA Section 313 Toxics Release Inventory (TRI) Program	Not listed.
NIOSH Occupational Carcinogen List	Not listed.
OSHA List of highly hazardous chemicals, toxics and reactives	Not listed.
NTP Report on Carcinogens (RoC) List	Not listed.
Poison Prevention Packaging Act	Not listed.
US State Regulations	
California State, Proposition 65 List	Not listed.
California State, Safer Consumer Products Regulations	Not listed.
Maine State, Toxic Chemicals in Children's Products Act	Not listed.
New Jersey State Worker and Community RTK Act	Limestone – RTKHSL.

Pennsylvania State, Worker and Community RTK Act	Limestone – Hazardous Substances List.
Rhode Island State, Hazardous Substances RTK Act	Limestone - Hazardous Substances List.
Non-Regional	
IARC Monographs, List of Classifications	Not listed.

SECTION 16: OTHER INFORMATION

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

Version	3.0
Revision Date	03-May-2017
Date of First Issue	20-Mar-2012

References:
Existing Safety Data Sheet (SDS), EU Data: Existing Safety Data Sheet (SDS), Existing ECHA registration(s) for bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) (CAS No. 25068-38-6) and 2-Ethyl-2-(hydroxymethyl)-1,3- Propanediol polymer with (chloromethyl)oxirane (CAS No. 30499-70-8). EU Harmonised Classification for reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) (CAS No. 25068-38-6), the Classification and Labelling Inventory for Limestone (CAS No. 1317-65-3) and 2-Ethyl-2-(hydroxymethyl)-1,3- Propanediol polymer with (chloromethyl)oxirane (CAS No. 30499-70-8).

GHS Classification of the substance or mixture	Classification Procedure
Skin Corrosive, Category 1C	Threshold Calculation
Eye Damage, Category 1	Threshold Calculation
Skin Sensitisation, Category 1	Threshold Calculation
Reproductive toxicity, Category 1B	Threshold Calculation
Hazardous to the aquatic environment, Chronic, Category 2	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": 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

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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