SAFETY DATA SHEET

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SAFETY DATA SHEET ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

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

1.1 Product identifier

Product Name	M-Bond A-12 Part A
CAS No.	Mixture
EINECS No.	Mixture
REACH Registration No.	None assigned.

1.2 Recommended use of the chemical and restrictions on use

Identified use(s)	Adhesives.
Uses advised against	None known.

1.3 Supplier's details

Company Identification	VISHAY MEASUREMENTS GROUP UK LTD Stroudley Road Basingstoke Hampshire RG24 8FW United Kingdom
Telephone	+44 (0) 1256 462131
Fax	+44 (0) 1256 471441
E-Mail (competent person)	mm.uk@vishaypg.com

1.4 Emergency Phone No.

Emergency Phone No.	(00-1) 703-527-3887 – CHEMTREC
Languages spoken	24 hours, English spoken

2. SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Regulation (EC) No. 1272/2008 (CLP).

Skin Irrit. 2; H315
Skin Sens. 1; H317
Eye Irrit. 2; H319
STOT RE 1; H372
Aquatic Chronic 2; H411

2.2 Label elements

According to Regulation (EC) No. 1272/2008 (CLP).

Product Name: M-Bond A-12 Part A

Hazard pictogram(s):

Signal word(s): Danger

Contains: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) and Quartz (Crystalline Silica)

Hazard statement(s):
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H372: Causes damage to organs through prolonged or repeated exposure.
H411: Toxic to aquatic life with long lasting effects.

Precautionary statement(s): P273: Avoid release to the environment.

P260: Do not breathe mist/vapours/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314: Get medical advice/attention if you feel unwell.

Additional Information None.

2.3 Other hazards EUH205: Contains epoxy constituents. May produce an allergic reaction.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances Not applicable

3.2 Mixtures Substances in preparations / mixtures
EC Classification Regulation (EC) No. 1272/2008 (CLP).

Chemical identity of the substance	%W/W	CAS No.	EC No.	REACH Registration No.	Hazard statement(s)
bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)	60	25068-38-6	500-033-5	Not yet assigned in the supply chain	Eye Irrit. 2; H319 Skin Irrit. 2; H315 Skin Sens. 1; H317 Aquatic Chronic 2; H411
Quartz (Crystalline Silica)	10	14808-60-7	238-878-4	Not yet assigned in the supply chain	STOT RE 1; H372
Aluminium oxide^	10	1344-28-1	215-691-6	Not yet assigned in the supply chain	Not classified

For full text of H/P Statements see section 16. ^Substance with a community exposure limit

4. SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Self-protection of the first aider: Wear appropriate personal protective equipment, avoid direct contact. Avoid contact with skin, eyes or clothing. Avoid breathing vapours. Ensure adequate ventilation.

Inhalation: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.

Skin Contact: IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation or rash occurs: 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. If eye irritation persists: Get medical advice/attention.

Ingestion: IF SWALLOWED: Unlikely to be hazardous if swallowed. Unlikely to be required but if necessary treat symptomatically.

4.2 Most important symptoms and effects, both acute and delayed Contains epoxy constituents. May produce an allergic reaction. Causes irritation to eyes and skin. Causes damage to organs through prolonged or repeated exposure. (Lungs)

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

5. SECTION 5: FIRE-FIGHTING MEASURES

5.1 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.

5.2 Special hazards arising from the substance or mixture

May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide.

5.3 Advice 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.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Shut off leaks if without risk. Avoid breathing vapours. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

6.2 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.

6.3 Methods and material for containment and cleaning up

Ensure suitable personal protection (including respiratory protection) during removal of spillages. Contain spillages. 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.

6.4 Reference to other sections

See Section: 8, 13

7. SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Ensure adequate ventilation. Do not breathe vapour. Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities

Keep away from heat and direct sunlight.

Storage Temperature	Ambient. 2 - 43 °C
Storage Life	Stable under normal conditions.
Incompatible materials	Keep away from: Oxidizing agents, unintended contact with amines, Strong Acids and Alkalis.

7.3 Specific end use(s)

See Section: 1.2

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational exposure limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Quartz (Crystalline Silica)	14808-60-7	-	-	-	-	WEL
Aluminium oxide	1344-28-1	- -	10 4	- -	- -	WEL Inhalable Aerosol Respirable Aerosol

Source: WEL: Workplace Exposure Limit (UK HSE EH40)

8.1.2 Biological limit value

Not established.

8.1.3 PNECs and DNELs

Not established.

8.2 Exposure controls

8.2.1	**Appropriate engineering controls**	Ensure adequate ventilation or use appropriate containment. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Local exhaust recommended.
8.2.2	**Individual protection measures, such as personal protective equipment (PPE)**	Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier. General hygiene measures for the handling of chemicals are applicable. Avoid contact with skin, eyes or clothing. 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 	Wear impervious gloves (EN374). Breakthrough time of the glove material: refer to the information provided by the gloves' producer. The gloves type used must be chosen based on the work activity and duration as well as concentration/quantity of material being handled.
	Respiratory protection 	In case of inadequate ventilation wear respiratory protection. Open system(s): Wear suitable respiratory protective equipment. Recommended: A self contained breathing apparatus may be appropriate.
	Thermal hazards	Not applicable.
8.2.3	**Environmental Exposure Controls**	Avoid release to the environment.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Brown Viscous liquid.
Odour	Faint Epoxy Odour
Odour Threshold	Not available.
pH	Not established.
Melting Point/Freezing Point	-16 °C (bisphenol-A)
Initial boiling point and boiling range	~320°C (bisphenol-A)
Flash point	>= 264 <= 268°C (bisphenol-A)
Evaporation rate	Not available.
Flammability (solid, gas)	Non-flammable.
Upper/lower flammability or explosive limits	Not applicable.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	1.26 (H_2O = 1) (Mixture)
Solubility(ies)	Not available.
Partition coefficient: n-octanol/water	>= 2.64 <= 3.78 log Pow (25 °C) (bisphenol-A)
Auto-ignition temperature	Not applicable.
Decomposition Temperature	>350°C (bisphenol-A)
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not oxidising.

9.2 Other information None.

10. SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	Stable under normal conditions.
10.2	**Chemical stability**	Stable under normal conditions.
10.3	**Possibility of hazardous reactions**	Combustion or thermal decomposition will evolve toxic and irritant vapours. Hazardous polymerisation will not occur.
10.4	**Conditions to avoid**	The product may decompose if heated to temperatures above (°C): 300
10.5	**Incompatible materials**	Oxidizing agents, Corrosive Substances, Reducing agent, Strong Acids and Alkalis. Amines
10.6	**Hazardous Decomposition Product(s)**	May decompose in a fire giving off toxic fumes. Phenolic, Carbon monoxide, Carbon dioxide.

11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1 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.
Inhalation	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 20.0 mg/l.
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 Irrit. 2: Causes skin irritation.
Reaction product: bisphenol-A-(epichlorhydrin)	Skin Irrit. 2; H315 Harmonised Classification
epoxy resin (number average molecular weight ≤ 700)	No data.
Serious eye damage/irritation	Eye Irrit. 2: Causes serious eye irritation.
Reaction product: bisphenol-A-(epichlorhydrin)	Eye Irrit. 2; H319 Harmonised Classification
epoxy resin (number average molecular weight ≤ 700)	No data.
Respiratory or skin sensitization	Skin Sens. 1: May cause an allergic skin reaction.
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	Skin Sens. 1; H317 Harmonised Classification No data.
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.
Quartz (Crystalline Silica)	In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans (human carcinogen category 1). However it pointed out that not all industrial circumstances, nor all crystalline silica types, were to be incriminated. (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.) In 2009, in the Monographs 100 series, IARC confirmed its classification of Silica Dust, Crystalline, in the form of Quartz and Cristobalite (IARC Monographs, Volume 100C, 2012). In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of fine fraction crystalline silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore preventing the onset of silicosis will also reduce the cancer risk…" (SCOEL SUM Doc 94-final, June 2003). So there is a body of evidence supporting the fact that increased cancer risk would be limited to people already suffering from silicosis. Worker protection against silicosis should be assured by respecting the existing regulatory occupational exposure limits and implementing additional risk management measures where required (see section 16 below).
Reproductive toxicity	Based upon the available data, the classification criteria are not met.
STOT - single exposure	Based upon the available data, the classification criteria are not met.
STOT - repeated exposure	STOT RE 1; Causes damage to organs through prolonged or repeated

		exposure.
	Quartz (Crystalline Silica)	STOT RE 1; H372
		No data.
	Aspiration hazard	Based upon the available data, the classification criteria are not met.
11.2	**Other information**	None.

12. SECTION 12: ECOLOGICAL INFORMATION

12.1	**Toxicity**	Aquatic Chronic 2; Toxic to aquatic life with long lasting effects.
	Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	Aquatic Chronic 2; H411 Harmonised Classification
		No data.
12.2	**Persistence and degradability**	Part of the components are poorly biodegradable.
	reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700):	No data.
	Quartz (Crystalline Silica)	No data.
	Aluminium oxide	Not applicable for inorganic substances
12.3	**Bioaccumulative potential**	The product has low potential for bioaccumulation.
	reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700):	No data.
	Quartz (Crystalline Silica)	No data.
	Aluminium oxide	Not applicable for inorganic substances
12.4	**Mobility in soil**	The product is predicted to have low mobility in soil. (Insoluble in water.)
	reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700):	The substance is predicted to have low mobility in soil. Slightly soluble in: Water
	Quartz (Crystalline Silica)	No data.
	Aluminium oxide	Not applicable for inorganic substances. Log Kd: 3 -5.
12.5	**Results of PBT and vPvB assessment**	Not classified as PBT or vPvB. None of the substances in this product fulfil the criteria for being regarded as a PBT or vPvB substance.
12.6	**Other adverse effects**	None known.

13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1	**Waste treatment methods**	Do not release undiluted and unneutralised to the sewer. Dispose of this material and its container as hazardous waste. Send after pre-treatment to a appropriate hazardous waste incinerator facility according to legislation.
13.2	**Additional Information**	Dispose of contents in accordance with local, state or national legislation.

14. SECTION 14: TRANSPORT INFORMATION

		ADR/RID	**IMDG**	**IATA**
14.1	**UN number**	UN 3082	UN 3082	UN 3082
14.2	**Proper Shipping Name**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Epoxy Resin)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Epoxy Resin)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Epoxy Resin)
14.3	**Transport hazard class(es)**	9	9	9
14.4	**Packing Group**	III	III	III
14.5	**Environmental hazards**	Environmentally hazardous substance	Classified as a Marine Pollutant	Environmentally hazardous substance
14.6	**Special precautions for user**	See Section: 2		
14.7	**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.		
14.8	**Additional information**	None.		

15. SECTION 15: REGULATORY INFORMATION

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

	mixture	
15.1.1	**EU regulations**	
	CoRAP Substance Evaluation	Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700): Substance evaluated in 2015; evaluating Member State has proposed to ask the registrants to provide further information.
15.1.2	**National regulations**	
	Wassergefährdungsklasse (Germany)	Water hazard class: 2
15.2	**Chemical Safety Assessment**	Not available.

16. SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: V2.0
Updated Section: 1.4, 2, 3, 4.1, 4.2, 5.1, 6.1, 8.1.1, 8.2.2, 10.3, 11, 12, 15.

References: Existing Safety Data Sheet (SDS) and Existing ECHA registration(s) for Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight < 700) (CAS No. 25068-38-6), and the Classification and Labelling Inventory for Quartz (Crystalline Silica) (CAS No. 14808-60-7), Aluminium Oxide (CAS No. 1344-28-1).

Classification of the substance or mixture According to Regulation (EC) No. 1272/2008 (CLP).	**Classification Procedure**
Skin Irrit. 2; H315	Threshold Calculation
Skin Sens. 1; H317	Threshold Calculation
Eye Irrit. 2; H319	Threshold Calculation
STOT RE 1; H372	Threshold Calculation
Aquatic Chronic 2	Threshold Calculation

LEGEND

LTEL: Long Term Exposure Limit
STEL: Short Term Exposure Limit
DNEL: Derived No Effect Level
PNEC: Predicted No Effect Concentration
PBT: Persistent, Bioaccumulative and Toxic
vPvT: very Persistent and very Toxic
OECD: Organisation for Economic Cooperation and Development

Hazard Class / Classification code:	**Hazard Statement(s)**
Skin Irrit. 2; Skin corrosion/irritation, Category 2	H315: Causes skin irritation.
Skin Sens. 1 ; Skin sensitisation, category 1	H317: May cause an allergic skin reaction.
Eye Irrit. 2; Serious eye damage/irritation, Category 2	H319: Causes serious eye irritation.
STOT RE 1; Specific target organ toxicity — repeated exposure, Category 1	H372: Causes damage to organs through prolonged or repeated exposure.
Aquatic Chronic 2; Hazardous to the aquatic environment, Chronic , Category 2	H411: Toxic to aquatic life with long lasting effects.

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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Annex to the extended Safety Data Sheet (eSDS)

No information available.

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