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 Curing Agent 10A
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)

Acute Tox. 4; H302
Acute Tox. 4; H312
Skin Corr. 1B; H314
Skin Sens. 1; H317
Eye Dam. 1; H318
Acute Tox. 2; H330
STOT SE 3; H335
Repr. 1B; H360F
Aquatic Chronic 2; H411

2.2 Label elements

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

Product Name: M-Bond Curing Agent 10A

Hazard Pictogram(s)

Signal Word(s): DANGER

Contains: 2,2'-Iminodi(ethylamine) and Bisphenol A

Hazard Statement(s): H302: Harmful if swallowed.

H312: Harmful in contact with skin.
H314: Causes severe skin burns and eye damage.
H317: May cause an allergic skin reaction.
H330: Fatal if inhaled.
H335: May cause respiratory irritation.
H360F: May damage fertility.
H411: Toxic to aquatic life with long lasting effects.

Precautionary Statement(s)

P201: Obtain special instructions before use.
P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with 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.
P310: Immediately call a POISON CENTER/doctor/…

Additional Information None

2.3 Other hazards None

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances Not applicable

3.2 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)
2,2'-Iminodi(ethylamine)	65-75	111-40-0	203-865-4	Not yet assigned in the supply chain	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1B; H314 Skin Sens. 1; H317 Acute Tox. 2; H330 STOT SE 3; H335
Bisphenol A	25-35	80-05-7	201-245-8	Not yet assigned in the supply chain	Skin Sens. 1; H317 Eye Dam. 1; H318 STOT SE 3; H335 Repr. 1B; H360F Aquatic Chronic 2; H411

For full text of H/P Statements see section 16.

4. SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Self-protection of the first aider

Wear suitable protective clothing. Do not breathe vapour. Avoid all contact. Do not use mouth-to-mouth resuscitation. Contaminated clothing should be thoroughly cleaned. A washing facility/water for eye and skin cleaning purposes should be present.

Inhalation

IF INHALED: Immediately call a POISON CENTER/doctor. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is laboured, oxygen should be administered by qualified

		personnel.
	Skin Contact	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Gently wash with plenty of soap and water. Immediately call a POISON CENTER/doctor.
	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. Treatment by an ophthalmologist due to possible caustic burn of the eyes may be required.
	Ingestion	IF SWALLOWED: Rinse mouth. Do not induce vomiting unless instructed to do so by medical personnel. Immediately call a POISON CENTER/doctor.
4.2	**Most important symptoms and effects, both acute and delayed**	Harmful if swallowed. Harmful in contact with skin. Fatal if inhaled.Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause respiratory irritation. Suspected of damaging fertility.
4.3	**Indication of any immediate medical attention and special treatment needed**	Treat symptomatically. Fluid build up on the lung (pulmonary oedema) may occur up to 48 hours after exposure and could prove fatal. Patient should be kept under medical observation for at least 48 hours.
	Notes to a physician:	IF IN EYES: Obtain prompt consultation, preferably from an ophthalmologist. Chemical eye burns may require extended irrigation. IF SWALLOWED: Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture.

5. SECTION 5: FIREFIGHTING MEASURES

5.1	**Extinguishing media**	
	Suitable Extinguishing media	As appropriate for surrounding fire. Extinguish with carbon dioxide, dry chemical, foam or waterspray. Alcohol resistant foams (ATC type) are preferred.
	Unsuitable extinguishing media	Halons. 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. Nitrogen oxides, Aldehydes, Carbon monoxide and Carbon dioxide.
5.3	**Advice for firefighters**	Shut off leaks if without risk. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Evacuate the area and keep personnel upwind. Do not breathe fumes. Use waterspray to 'knock down' vapour, but do not use water jet on a leak of the tank. 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. Stop leak if safe to do so. Use personal protective equipment as required. Avoid all contact. Do not breathe vapour. Ground and bond container and receiving equipment.
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**	Small spillages: Adsorb spillages onto sand, earth or any suitable adsorbent material. Do not adsorb onto sawdust or other combustible materials. Transfer to a container for disposal. Large spillages: Dike area to contain the spill and prevent releases to sewers, drains, or other waterways. Use water spray to cool and disperse vapours and protect personnel. Use vacuum equipment for collecting spilt materials, where practicable. Ventilate the area and wash spill site after material pick-up is complete. 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**	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. 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.

7.2 Conditions for safe storage, including any incompatibilities

Store under inert gas (e.g nitrogen) to prevent ingress of moisture or air into the container. If a container is part emptied flush thoroughly with inert gas prior to resealing. Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, sources of ignition and direct sunlight.
Suitable containers: Stainless steel, Aluminium.
Unsuitable containers: Brass, Copper, copper alloy, Bronze.

Storage temperature: Ambient. Keep at temperature not exceeding (℃): 27

Storage life: Protect from moisture. Bulk storage should be under nitrogen blanket.

Incompatible materials: Keep away from: nitrosating agents, Cellulose Nitrates, Strong oxidising agents, strong bases, Acids, Aldehydes, metals (Copper, Zinc and their alloys) and halogenated compounds, Sawdust.

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
2,2'-Iminodi(ethylamine)	111-40-0	1	4.3	-	-	WEL
Bisphenol A	80-05-7	-	2	-	-	IOELV; Inhalable fraction

Note: WEL: Workplace Exposure Limit (UK HSE EH40), IOELV: Indicative Occupational Exposure Limit Value

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. Guarantee that the eye flushing systems and safety showers are located close to the working place.

8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable. 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. Avoid all contact. Do not breathe vapour. Wash hands before breaks and after work. Keep work clothes separately. 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).
Recommended: Safety spectacles/goggles/full face shield.

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.
Recommended: Butyl rubber, Polyethylene, PVC, Polyvinyl Alcohol, Viton, Neoprene.

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. A suitable mask with filter type A (EN141 or EN405) may be appropriate. Recommended: Organic vapor cartridge with a particulate pre-filter, type AP2
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	Clear Liquid
Odour	Ammoniacal Odour
Odour threshold	Not available.
pH	Not established.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	199℃
Flash point	102℃ [Closed cup]
Evaporation rate	Not established.
Flammability (solid, gas)	Not applicable - Liquid
Upper/lower flammability or explosive limits	Flammable Limits (Lower) (%v/v): 1.4 Flammable Limits (Upper) (%v/v): 9.2
Vapour pressure	<1 @ 27℃
Vapour density	3.56 (Air = 1)
Relative density	1.02 g/cm^3 (H_2O = 1)
Solubility(ies)	The product is soluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.
Explosive properties	Not explosive.
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. May decompose if heated.
10.3	**Possibility of hazardous reactions**	Hazardous polymerisation will not occur. If spilt substance is absorbed in a rag, the high surface area of the material can allow autoignition at room temperature.
10.4	**Conditions to avoid**	Keep away from heat and sources of ignition. Keep at temperature not exceeding (℃): 27
10.5	**Incompatible materials**	Keep away from: nitrosating agents, Cellulose Nitrates, Strong oxidising agents, strong bases, Acids, Aldehydes, metals (Brass, Copper, Bronze, Zinc and their alloys), halogenated compounds, Sawdust.
10.6	**Hazardous decomposition products**	Decomposes in a fire giving off toxic fumes: Nitrogen oxides, Aldehydes, Carbon monoxide, Carbon dioxide, Ammonia, Volatile Amines.

11. SECTION 11: TOXICOLOGICAL INFORMATION

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

Acute toxicity

Ingestion	Mixture: Acute Tox. 4; H302: Harmful if swallowed. Acute Toxicity Estimate Mixture Calculation: LD50: 500 - 1000 mg/kg bw/day.

		2,2'-Iminodi(ethylamine)	Acute Tox. 4; H302: Harmful if swallowed. EU Harmonised Classification
	Inhalation		Acute Tox. 2; H330: Fatal if inhaled. Acute Toxicity Estimate Mixture Calculation: LC50 (Vapour): 0.5 – 1.0 mg/l
		2,2'-Iminodi(ethylamine)	Mixture: Acute Tox. 2; H330: Fatal if inhaled. NOEL (Air)(rat) mg/l: 0.07 (OECD 403)
	Skin Contact		Mixture: Acute Tox. 4; H312: Harmful in contact with skin. Acute Toxicity Estimate Mixture Calculation: LD50: 1000 - 2000 mg/kg bw/day
		2,2'-Iminodi(ethylamine)	Acute Tox. 4; H312: Harmful in contact with skin. EU Harmonised Classification
	Skin corrosion/irritation		Mixture: Skin Corr. 1B: H314: Causes severe skin burns and eye damage.
		2,2'-Iminodi(ethylamine)	Skin Corr. 1B; H314: Causes severe skin burns and eye damage. EU Harmonised Classification. Corrosive to skin. (rabbit) (Unnamed publication , 1957)
	Serious eye damage/irritation		Mixture: Eye Dam. 1; H318: Causes serious eye damage.
		2,2'-Iminodi(ethylamine)	Eye Dam. 1; H318: Causes serious eye damage. Corrosive to eyes. (Unnamed publication , 1970)
		Bisphenol A	Eye Dam. 1; H318: Causes serious eye damage. EU Harmonised Classification. Corrosive to eyes. (rabbit) (OECD 405)
	Respiratory or skin sensitisation		Mixture: Skin Sens. 1: H317: May cause an allergic skin reaction.
		2,2'-Iminodi(ethylamine)	Skin Sens. 1; H317: May cause an allergic skin reaction. EU Harmonised Classification. Skin sensitization: Positive (mouse) (OECD 429)
		Bisphenol A	Skin Sens. 1; H317: May cause an allergic skin reaction. EU Harmonised Classification. Skin sensitization: Negative (mouse) (OECD 406)
	Germ cell mutagenicity		Mixture: Based upon the available data, the classification criteria are not met.
	Carcinogenicity		Mixture: Based upon the available data, the classification criteria are not met.
	Reproductive toxicity		Mixture: Repr. 1B; H360F: May damage fertility.
		Bisphenol A	Repr. 1B: H360F: May damage fertility. EU Harmonised Classification. NOAEL (mouse): 300 ppm Body weight (OECD 416).
	STOT - single exposure		Mixture: STOT SE 3; H335: May cause respiratory irritation.
		2,2'-Iminodi(ethylamine)	STOT SE 3; H335: May cause respiratory irritation. May cause pulmonary oedema.(rat) (Unnamed publication , 1970) (OECD 403)
		Bisphenol A	STOT SE 3; H335: May cause respiratory irritation. EU Harmonised Classification.
	STOT - repeated exposure		Mixture: Based upon the available data, the classification criteria are not met.
	Aspiration hazard		Mixture: Based upon the available data, the classification criteria are not met.
11.2	**Other information**		None.

12. SECTION 12: ECOLOGICAL INFORMATION

12.1	**Toxicity**		Mixture: Aquatic Chronic 2; H411: Toxic to aquatic life with long lasting effects. Estimated Mixture LC50 $\leq$1 mg/l (Fish)
		Bisphenol A	Aquatic Chronic 2; H411: Toxic to aquatic life with long lasting effects. LC50 (fish) mg/l:3.0 – 8.3 (OECD 203) NOEC (Fish): 0.016 mg/L (Unnamed publication , 2000)
12.2	**Persistence and degradability**		Mixture: No data for the mixture as a whole.
		2,2'-Iminodi(ethylamine)	Readily biodegradable. (OECD 302A)
		Bisphenol A	Readily biodegradable. (OECD 301F)
12.3	**Bioaccumulative potential**		Mixture: No data for the mixture as a whole.
		2,2'-Iminodi(ethylamine)	The substance has low potential for bioaccumulation. Bioconcentration factor (BCF) : < 6.3 l/kg (Fish) (OECD 305C) EU ECHA Registration Endpoint summary.
		Bisphenol A	The substance has low potential for bioaccumulation. Bioconcentration factor (BCF) : < 73 l/kg (Fish) EU ECHA Registration Endpoint summary.
12.4	**Mobility in soil**		Mixture: No data for the mixture as a whole.
		2,2'-Iminodi(ethylamine)	The substance has low mobility in soil.

		Koc: 19111 l/kg @ 25 ℃; Log(Koc): 4.3 l/kg @ 25 ℃ (Unnamed publication , 1991). EU ECHA Registration Endpoint summary.
	Bisphenol A	The substance has moderate mobility in soil. Koc: 750 l/kg @ 25 ℃. EU ECHA Registration Endpoint summary.
12.5	**Results of PBT and vPvB assessment**	Mixture: 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**	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.
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 2927	UN 2927	UN 2927
14.2	**Proper Shipping Name**	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (CONTAINS 2,2'-IMINODI(ETHYLAMINE)	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (CONTAINS 2,2'-IMINODI(ETHYLAMINE)	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (CONTAINS 2,2'-IMINODI(ETHYLAMINE)
14.3	**Transport hazard class(es)**	6.1 + 8	6.1 + 8	6.1 + 8
14.4	**Packing group**	II	II	II
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 Marpol 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**	
	Authorisations and/or Restrictions On Use	No components of the mixture are listed
	Substance(s) of Very High Concern (SVHCs)	No components of the mixture are listed
	CoRAP Substance Evaluation	Bisphenol A: Substance evaluated in 2012; evaluating Member State has proposed to ask the registrants to provide further information.
15.1.2	**National regulations**	
	Germany	Water hazard class: 2 (Self classification)
15.2	**Chemical Safety Assessment**	Not available.

16. SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 2.2; 7.2; 10.5; 11.1; 11.2; 12.1 – 12.6; 16 (LEGEND). Replaces: V3.0

The following sections have updates indicated by :

References: Existing Safety Data Sheet (SDS), Existing ECHA registration(s) and Harmonised Classification(s) for 2,2'-iminodi(ethylamine) (CAS No. 111-40-0) and Bisphenol A (CAS No. 80-05-7).

Classification of the substance or mixture According to Regulation (EC) No. 1272/2008 (CLP)	Classification Procedure
Acute Tox. 4; H302	Acute Toxicity Estimate Mixture Calculation
Acute Tox. 4; H312	Acute Toxicity Estimate Mixture Calculation
Skin Corr. 1B; H314	Threshold Calculation
Skin Sens. 1; H317	Threshold Calculation
Eye Dam. 1; H318	Threshold Calculation
Acute Tox. 2; H330	Acute Toxicity Estimate Mixture Calculation
STOT SE 3; H335	Threshold Calculation
Repr. 2; H361F	Threshold Calculation
Aquatic Chronic 2; H411	Summation Calculation

LEGEND

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS: Chemical Abstracts Service
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods
LC50: Lethal concentration at which 50% of the population is killed
LD50: Lethal dose at which 50% of the population is killed
LTEL: Long Term Exposure Limit
NOEC: no observed effect concentration
NOEL: no observed effect level
OECD: Organisation for Economic Cooperation and Development
PBT: Persistent, Bioaccumulative and Toxic
PNEC: Predicted No Effect Concentration
RID: Regulations concerning the international railway transport of dangerous goods
STEL: Short term exposure limit
TWA: Time Weighted Average
vPvB: very Persistent and very Bioaccumulative

Hazard Class / Classification code:	Hazard Statement(s)
Acute Tox. 4; Acute toxicity, Category 4	H302: Harmful if swallowed.
Acute Tox. 4; Acute toxicity, Category 4	H312: Harmful in contact with skin.
Skin Corr. 1B; Skin corrosion/irritation, Category 1B	H314: Causes severe skin burns and eye damage.
Skin Sens. 1 ; Skin sensitisation, category 1	H317: May cause an allergic skin reaction.
Eye Dam. 1; Serious eye damage/irritation, Category 1	H318: Causes serious eye damage.
Acute Tox. 2; Acute toxicity, Category 2	H330: Fatal if inhaled.
STOT SE 3; Specific target organ toxicity — single exposure, Category 3	H335: May cause respiratory irritation.
Repr. 1B; Reproductive toxicity, Category 1B	H360F: May damage fertility.
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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