SAFETY DATA SHEET

M-Bond Curing Agent – Type 15

www.vpgsensors.com

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Version: 3.0

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

SECTION 1: IDENTIFICATION

Product identifier

Product Name	M-Bond Curing Agent – Type 15

Other Means of Identification

Product type	Substance
Substance name	3-Diethylaminopropylamine
CAS No.	104-78-9
EINECS No.	203-236-4

Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s)	Adhesives.
Uses Advised Against	Anything other than the above.

Details of the supplier of the safety data sheet

Supplier	VISHAY MEASUREMENTS GROUP, INC. Post Office Box 27777 Raleigh, NC 27611 USA
Telephone	919-365-3800
Fax	919-365-3945
E-Mail (competent person)	mm.us@vpgsensors.com

Emergency telephone number

Emergency Phone No.	+1 800-262-8200 (for spills and releases) CHEMTREC (24 hours)
Languages spoken	English

SECTION 2: HAZARD(S) IDENTIFICATION

Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200

Physical hazards	Flammable liquid, Category 3
Health hazards	Acute toxicity (oral), Category 4 Acute toxicity (dermal), Category 3 Skin corrosion/irritation, Category 1B Skin sensitization, Category 1 Serious eye damage/irritation, Category 1 Specific target organ toxicity - Single exposure, Category 3 (Respiratory tract irritation)
Environmental hazards	Not applicable

Label elements

Hazard Pictogram(s)

Signal Word(s): DANGER

Hazard Statement(s):
Flammable liquid and vapour.
Harmful if swallowed.
Toxic in contact with skin.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.

	May cause respiratory irritation.
Precautionary Statement(s)	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion proof electrical equipment. Use non-sparking tools. Take action to prevent static discharges. Do not breathe mist/vapours/spray. Wash hands and exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves and eye/face protection. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN or hair: Take off immediately all contaminated clothing. Rinse skin with water. 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. Specific treatment (see on this label). Rinse mouth. If skin irritation or rash occurs: Get medical advice/attention. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. In case of fire: Use dry powder to extinguish. Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up. Dispose of contents in accordance with local, state or national legislation.
Other hazards	Vapours can form explosive mixtures with air.
Percent of the mixture consists of ingredient(s) of unknown acute toxicity:	0% of the mixture consists of ingredients of unknown acute inhalated toxicity. 0% of the mixture consists of ingredients of unknown acute oral toxicity. 0% of the mixture consists of ingredients of unknown acute dermal toxicity.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Classification: OSHA HCS (29 CFR 1910.1200)

SUBSTANCE	CAS No.	EC No.	%W/W
3-Diethylaminopropylamine	104-78-9	203-236-4	100%

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Self-protection of the first aider	Do not breathe vapour. Wear suitable protective clothing. Avoid contact with skin, eyes and clothes. A washing facility/water for eye and skin cleaning purposes should be present.
Inhalation	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Apply artificial respiration if necessary (do not employ mouth-to-mouth method). Call a POISON CENTER/doctor if you feel unwell.
Skin Contact	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. 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.
Most important symptoms and effects, both acute and delayed	Harmful if swallowed.Toxic in contact with skin. Causes severe skin burns and eye damage.May cause an allergic skin reaction. May cause respiratory irritation.
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. 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.

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	Flammable liquid and vapour. Decomposes in a fire giving off toxic fumes: Ammonia, Nitrogen oxides, Carbon monoxide and Carbon dioxide. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. Sealed containers may rupture explosively if hot.
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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	No action should be taken involving personal risk. Avoid all contact. Remove contaminated clothing immediately. Shut off leaks if without risk. Eliminate all ignition sources if safe to do so. Do not allow to enter drains, sewers or watercourses. Take precautionary measures against static discharge. Ensure that the equipment is adequately grounded. Vapours are heavier than air, spread along floors and form explosive mixtures with air. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
Methods and material for containment and cleaning up	Evacuate the area and keep personnel upwind. Contain spillages. Use non-sparking equipment when picking up flammable spill. Adsorb spillages onto sand, earth or any suitable adsorbent material. Neutralize with: sodium bisulphate solution. 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 contact with skin, eyes or clothing. Do not breathe vapour. Ensure adequate ventilation. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. 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. Ground and bond container and receiving equipment.
Conditions for safe storage, including any incompatibilities	Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Suitable containers: Mild steel, Glass (Small Quantities)
Storage temperature	Ambient. <50 ℃
Incompatible materials	Keep away from: Strong oxidising agents, Acids, Nitrates, Nitrites, Halogens, Carbon dioxide, Nitric oxide and Water. May react violently with: Alkalis.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits	Not established.
Biological exposure indicies	Not established.
Appropriate engineering controls	Ensure adequate ventilation or use appropriate containment. Local exhaust recommended. Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems. Guarantee that the eye flushing systems and safety showers are located close to the working place.
Individual protection measures, such as personal protective equipment (PPE)	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. Do not eat, drink or smoke at the work place.

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.

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: PVC, 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. Open system(s): Wear suitable respiratory protective equipment. Recommended: A suitable mask with filter type A (EN141 or EN405) may be appropriate. Prolonged, direct contact: A self contained breathing apparatus may be appropriate.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Almost colourless to pale yellow Liquid

Odor	Amine-like Odour
Odor Threshold	Not established
pH	Not established
Melting Point/Freezing Point	Not established
Initial boiling point and boiling range	168-171℃
Flash Point	53℃
Evaporation Rate	Not established
Flammability (solid, gas)	Not applicable. (Liquid)
Upper/lower flammability or explosive limits	Flammable Limits (Lower) (%v/v) 1, Flammable Limits (Upper) (%v/v) 7.5
Vapour pressure	2.2 mbar @ 20℃
Vapour density	Not established
Relative density	0.82 (H_2O = 1)
Solubility(ies)	Not established
Partition coefficient: n-octanol/water	Not established
Auto-ignition temperature	Not established
Decomposition Temperature	Not established
Viscosity	Not established
Specific Gravity	Not established
Volatile Organic Compound Content	0%
Other information	
Evaporation rate	Not established.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	May react violently with: Alkalis. Strong oxidising agents, Nitrates, Peroxides.
Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid contact with moisture.
Incompatible materials	Do not mix with acids and alkalis. Keep away from: Strong oxidising agents, Nitrates, Nitrites, Halogens, Carbon dioxide, Nitric oxide and Water.
Hazardous decomposition product(s)	Combustion or thermal decomposition will evolve toxic vapour: Ammonia, Nitrogen oxides, Carbon monoxide and Carbon dioxide.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity - Ingestion	Acute toxicity (oral), Category 4: Harmful if swallowed. EU Harmonised Classification LD50 (oral,rat) mg/kg: 830 (OECD 401)
Acute toxicity - Skin Contact	Acute toxicity (dermal), Category 3: Toxic in contact with skin. ECHA registration dossier LD50 (oral,rabbit) mg/kg: 524 (OECD 402)
Acute toxicity - Inhalation	Based upon the available data, the classification criteria are not met.
Skin corrosion/irritation	Skin corrosion/irritation, Category 1B: Causes severe skin burns. EU Harmonised Classification Corrosive to rabbit skin (Unnamed publication, 1961)
Serious eye damage/irritation	Serious eye damage/irritation, Category 1: Causes serious eye damage. EU Harmonised Classification Causes serious eye damage. (Unnamed publication, 1961)
Respiratory or skin sensitization	Skin sensitization, Category 1: May cause an allergic skin reaction. EU Harmonised Classification Skin sensitization: Positive (OECD 406)
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	Based upon the available data, the classification criteria are not met.

STOT - single exposure	Specific target organ toxicity - Single exposure, Category 3 : May cause respiratory irritation. (Respiratory tract, Exposure route: Inhalation). Irritating to respiratory system. (OECD 408) EU Harmonised Classification
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 exposure
Ingestion	Possible – accidental exposure
Skin Contact	Possible – accidental exposure
Eye Contact	Possible – accidental exposure

Early onset symptoms related to exposure	None Known
Delayed health effects from exposure	Harmful if swallowed.Toxic in contact with skin. Causes severe skin burns and eye damage.May cause an allergic skin reaction. May cause respiratory irritation.
Exposure levels and health effects	See Section: 8
Interactive effects	None Known

Other information

OSHA Designated Carcinogen	The substance is not listed.
NIOSH Occupational Carcinogen List	The substance is not listed.
NTP Report on Carcinogens	The substance is not listed.
IARC Monographs	The substance is not listed.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity	Based upon the available data, the classification criteria are not met. Acute Toxicity: LC50 (fish) mg/l (96 hour): 146.6 (German national standard DIN 38 412, part L15) Chronic Toxicity: NOEC(fish) mg/L (28d): 31.132 mg/L NOEC (Daphnia magna) mg/L (21d): 2.01 mg/L ECHA Registration Endpoint summary
Persistence and degradability	Readily biodegradable. Water % Degradation: 90 - 100% (28 days) (OECD 301 A)
Bioaccumulative potential	The product has low potential for bioaccumulation.
Mobility in soil	The product is predicted to have high mobility in soil. Log Koc: 2.01 (Kocwin 2.0, 2014)
Other adverse effects	None Known

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods	Dispose of this material and its container as hazardous waste. Send after pre-treatment to a appropriate hazardous waste incinerator facility according to legislation. Containers of this material may be hazardous when empty since they retain product residue.

SECTION 14: TRANSPORT INFORMATION

	Road/Rail (ADR/RID)	**Sea transport (IMDG)**	**Air (ICAO/IATA)**
UN number	UN 2684	UN 2684	UN 2684
UN proper shipping name	3-DIETHYLAMINOPROPYL-AMINE	3-DIETHYLAMINOPROPYL-AMINE	3-DIETHYLAMINOPROPYL-AMINE

Transport hazard class(es)	3 + 8	3 + 8	3 + 8
Packing group	III	III	III
Environmental hazards	Not classified as a Marine Pollutant/ Environmentally hazardous substance		
Special precautions for user	See Section: 2		
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable		
Additional Information	None		

SECTION 15: REGULATORY INFORMATION

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

US Federal Regulations

TSCA Chemical Data Reporting (CDR) Rule	Subject to 25,000lb reporting threshold
NIOSH Occupational Carcinogn List	The substance is not listed.
EPCRA Section 313	The substance is not listed.
CWA 307- Toxic	The substance is not listed.
CERCLA - Hazardous Substances	The substance is not listed.
CWA Section 311 List of Hazardous Substances	The substance is not listed.

US State Regulations

Proposition 65 (California)	The substance is not listed.
Massachusetts, New Jersey, Pennsylvania, Rhode Island- State Right to Know Lists	The substance is listed. (RTKHSL. SHHSL)
New York -State Right to Know Lists	The substance is listed. (TRQ = 100 lbs)
Minnesota - State Right to Know Lists	The substance is not listed.
Massachusetts – Toxic Use reduction act	The substance is not listed.

Non-Regional

IARC Monographs	The substance is not listed.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: V3.0 - Updated version and date

Version	3.0
Revision Date	16/05/2024
Date of First Issue	20/03/2012

This Safety Data Sheet was prepared in accordance with US Regulation OSHA HCS (29 CFR 1910.1200)

References:
Existing Safety Data Sheet (SDS)
EU Harmonised Classification(s) for 3-Diethylaminopropylamine (CAS No. 104-78-9)
Existing ECHA registration(s) for 3-Diethylaminopropylamine (CAS No. 104-78-9).

Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200	**Classification Procedure**
Flammable liquid, Category 2	Flash Point / Harmonised Classification
Acute toxicity (oral), Category 4	Harmonised Classification
Acute toxicity (dermal), Category 3	Threshold Calculation
Skin corrosion/irritation, Category 1B	Harmonised Classification
Skin sensitization, Category 1	Harmonised Classification
Serious eye damage/irritation, Category 1	Harmonised Classification
Specific target organ toxicity - Single exposure, Category 3 (Respiratory tract irritation)	Harmonised Classification

LEGEND

ADR/RID	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road / RID: Regulations concerning the international railway transport of dangerous goods
BCF	Bioconcentration factor (BCF)
CAS	CAS: Chemical Abstracts Service
DNEL	Derived No Effect Level
EC	EC: European Community
EU	European Union
IATA	IATA: International Air Transport Association
ICAO/IATA	ICAO: International Civil Aviation Organization / IATA: International Air Transport Association
IMDG	IMDG: International Maritime Dangerous Goods
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
UN	United Nations
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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