SAFETY DATA SHEET

M-Bond 450 LVOC Part A

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ACCORDING TO OSHA HCS (29 CFR 1910.1200)

Date of Issue: 27 January 2023
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Version: 1.0

SECTION 1: IDENTIFICATION

Product identifier

Product Name	M-Bond 450 LVOC Part A
Other Means of Identification	None known.
Relevant identified uses of the substance or mixture and uses advised against	
Identified Use(s)	Adhesive
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	Eye Irritation, Category 2 Skin sensitizer, Category 1 Carcinogen, Category 1B
Environmental hazards	Not classified

Label elements

Hazard Pictogram(s)

Signal Word(s)	DANGER
Hazard Statement(s)	Flammable liquid and vapour. Causes serious eye irritation. May cause an allergic skin reaction. May cause cancer.
Precautionary Statement(s)	Obtain special instructions before use. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take action to prevent static discharges. Wear protective gloves/eye protection/face protection. IF exposed or concerned: Get medical advice/attention. 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
not applicable

Mixtures Substances in preparations / mixtures
Classification: OSHA HCS (29 CFR 1910.1200)

Chemical identity of the substance	%W/W	CAS No.	EC No.	Hazard classification
Acetone	1 - 10	67-64-1	200-662-2	Flammable Liquid, Category 2 Eye Irritant, Category 2 STOT, Single Exposure, Category 3, Narcotic effects
Phenyl glycidyl ether	0.05 - 0.1	122-60-1	204-557-2	Acute toxicity, Oral, Category 4 Skin corrosion/irritation, Category 2 Skin sensitizer, Category 1 Acute toxicity, Inhalation, Category 4 STOT, Single Exposure, Category 3, Respiratory Irritation Germ cell mutagenicity, Category 2 Hazardous to the aquatic environment, Chronic, Category 3 Carcinogenicity, Category 1B

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Self-protection of the first aider	Avoid breathing mist/vapours/spray. Ensure adequate ventilation. Wear suitable protective clothing. Wear suitable respiratory protective equipment if exposure to high levels of material are likely. Avoid contact with skin. Contaminated clothing should be laundered before reuse. Do not use mouth-to-mouth resuscitation. Eyewash facilities should be stationed close to workplace where possible.
Inhalation	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
Skin Contact	IF ON SKIN: Gently wash with plenty of soap and water. Remove contaminated clothing and wash clothing before reuse. 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. If eye irritation persists: Get medical advice/attention.
Ingestion	IF SWALLOWED: Rinse mouth. Do not give anything by mouth to an unconscious person. Do NOT induce vomiting. If symptoms occur obtain medical attention.
Most important symptoms and effects, both acute and delayed	Causes serious eye irritation.May cause an allergic skin reaction. May cause cancer.
Indication of any immediate medical attention and special treatment needed	Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media	As appropriate for surrounding fire. Extinguish preferably with foam, carbon dioxide or dry chemical.
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. Vapours can form explosive mixtures with air. Containers may explode when involved in a fire. Keep container(s) exposed to fire cool, by spraying with water. Thermal decomposition will evolve toxic and corrosive vapours: Carbon dioxide, Carbon monoxide. 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	Ensure adequate ventilation. Stop leak if safe to do so. Eliminate all ignition sources if safe to do so. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing mist/vapours/spray. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. See Section: 8. The vapour is heavier than air; beware of pits and confined spaces.
Methods and material for containment and cleaning up	Ensure suitable personal protection during removal of spillages. Use non-sparking equipment when picking up flammable spill. Adsorb spillages onto sand, earth or any suitable adsorbent material. Do NOT absorb in saw-dust or other combustible absorbents. Transfer to a lidded container for disposal or recovery. Ventilate the area and wash spill site after material pick-up is complete. Dispose of this material and its container as hazardous waste. Allow small spillages to evaporate provided there is adequate ventilation.
Large spillages:	Evacuate the area and keep personnel upwind. Notify police and fire brigade as soon as possible.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling	Ensure adequate ventilation. Avoid breathing mist/vapours/spray. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. See Section: 8. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Do not use sparking tools. Do not spray on an open flame or other ignition source. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Ground/bond container and receiving equipment.
Conditions for safe storage, including any incompatibilities	Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from direct sunlight. Do not reuse empty containers.
Storage temperature	Store in a cool/low temperature.
Incompatible materials	Keep away from: Strong oxidising agents, Strong acids and alkali.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

SUBSTANCE	CAS No.	ppm (a)[1]	mg/m3(b)[1]	Skin designation	Source
Acetone	67-64-1	1000	2400	-	OSHA

Source:
OSHA: Occupational Health and Safety Act - Permissible Exposure Limit (PEL), 1910.1000 TABLE Z-1

Notes:
A4 - Not Classifiable as a Human Carcinogen

Biological exposure indicies

SUBSTANCE	CAS No.	Determinant	Biological Exposure Indices	Sampling Time	Note
Acetone	67-64-1	Acetone in urine	25mg/L	End of Shift	Ns

Source:
2015 ACGIH Biological Exposure Indicies (BEIs)
Notes:
Nonspecific - The determinant is nonspecific, since it is also observed after exposure to other chemicals.

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. Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems. Eyewash facilities should be stationed close to workplace where possible.

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. Avoid breathing mist/vapours/spray. Wash hands before breaks and after work. Keep work clothes separately. Contaminated clothing should be thoroughly cleaned. 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).

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 / Nitrile rubber.

During full contact:
Protective index 6, corresponding > 480 minutes of permeation time according to EN 374.
Nitrile rubber (Minimum thickness: 0.33 mm)
Butyl rubber (Minimum thickness: 0.5 mm)

During splash contact:
At least protective index 5, corresponding > 240 minutes of permeation time according to EN 374
Polychloroprene - CR (Minimum thickness: 0.5 mm)

Unsuitable gloves materials:
Natural rubber/natural latex, Polyvinyl chloride - PVC.

Body protection:
Wear dustproof working clothes. Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection

Use only in well-ventilated areas. In case of inadequate ventilation wear respiratory protection. A suitable mask with filter type A (EN141 or EN405) may be appropriate.

High concentrations: Wear suitable respiratory equipment. Recommended: Self-contained breathing apparatus (DIN EN 137)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Liquid
Odor	Not established.
Odor Threshold	Not established.
pH	Not established.
Melting Point/Freezing Point	Not established.
Initial boiling point and boiling range	Not established.
Flash Point	Not established.
Evaporation Rate	Not established.
Flammability (solid, gas)	Not established.
Upper/lower flammability or explosive limits	Not established.
Vapour pressure	Not established.
Vapour density	Not established.
Relative density	Not established.
Solubility(ies)	Not established.
Partition coefficient: n-octanol/water	not applicable - Mixture
Auto-ignition temperature	Not established.
Decomposition Temperature	Not established.
Viscosity	Not established.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable under normal conditions. Hazardous polymerisation will not occur.
Possibility of hazardous reactions	Vapour is explosive in air at temperatures higher than the flash point. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback.
Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep from direct sunlight. Do not spray on an open flame or other ignition source. Take precautionary measures against static discharge.
Incompatible materials	Strong oxidising agents, Strong acids and alkali.
Hazardous decomposition product(s)	Flammable liquid and vapour. May decompose in a fire giving off toxic fumes. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. In confined spaces, sewers, etc., the vapours may collect to form explosive mixtures with air. Decomposition products: Carbon monoxide, Carbon dioxide, aliphatic aldehydes, aromatic aldehydes, acids and terpenes.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity - Ingestion	Mixture: Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) >2,000 mg/kg.
Acute toxicity - Skin Contact	Mixture: Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) >2,000 mg/kg.
Acute toxicity - Inhalation	Mixture: Based upon the available data, the classification criteria are not met.

		Calculated acute toxicity estimate (ATE) > 5 mg/l
Skin corrosion/irritation		Mixture: Based upon the available data, the classification criteria are not met.
Serious eye damage/irritation		Mixture: Serious eye damage/irritation, Category 2: Causes serious eye irritation
	Acetone	Serious eye damage/irritation, Category 2: Causes serious eye irritation
		Test Result: Irritating to eyes. (OECD 405)
		EU Data: Harmonised Classification/ ECHA registration dossier
Respiratory or skin sensitization		Mixture: Skin sensitizer, Category 1: May cause an allergic skin reaction.
	Phenyl glycidyl ether	Skin sensitizer, Category 1: May cause an allergic skin reaction.
		Buehler test Sensitisation (guinea pig) – Positive (Adverse effects observed)
		EU Data: Harmonised Classification/ ECHA registration dossier
Germ cell mutagenicity		Mixture: Based upon the available data, the classification criteria are not met.
Carcinogenicity		Mixture: Carcinogen, Category 1B: May cause cancer
	Phenyl glycidyl ether	Carcinogen, Category 1B: May cause cancer
		EU Data: Harmonised Classification/ ECHA registration dossier
Reproductive toxicity		Mixture: Based upon the available data, the classification criteria are not met.
STOT - single exposure		Mixture: Based upon the available data, the classification criteria are not met.
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.

Information on likely routes of exposure	
Inhalation	Possible – accidental exposure
Ingestion	Possible – accidental exposure
Skin Contact	Possible – accidental exposure
Eye Contact	Unlikely – accidental exposure
Early onset symptoms related to exposure	Causes serious eye irritation. May cause an allergic skin reaction. May cause cancer.
Delayed health effects from exposure	None Known
Exposure levels and health effects	See Section: 8
Interactive effects	
Other information	
OSHA Designated Carcinogen	No components of the mixture are listed
NIOSH Occupational Carcinogen List	No components of the mixture are listed
NTP Report on Carcinogens	No components of the mixture are listed
IARC Monographs	No components of the mixture are listed

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity		Based upon the available data, the classification criteria are not met.
		Estimated Mixture LC50 >100 mg/l (Fish)
Persistence and degradability		No data for the mixture as a whole.
	Acetone	Readily biodegradable (according to OECD criteria).
		Degradation rate (%): 90.9±2.2 (28 days) OECD 301B
	Phenyl glycidyl ether	Not readily biodegradable (OECD 302C)
Bioaccumulative potential		No data for the mixture as a whole.
	Acetone	Bioconcentration factor (BCF): 3 (calculated)
		Log KOW= -0.24
		Bioaccumulation will not occur
	Phenyl glycidyl ether	No data available
Mobility in soil		No data for the mixture as a whole.
	Acetone	The substance is predicted to have high mobility in soil.
		Kd= 1.5 L/kg@ 20 ℃
	Phenyl glycidyl ether	The substance is predicted to have high mobility in soil.
		Koc at 25℃ = 41.09, Log Koc = 1.61 (Q)SAR

Other adverse effects	None known

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods	This material and its container must be disposed of as hazardous waste. Dispose of wastes in an approved waste disposal facility. Dispose of contents in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

	Road/Rail (ADR/RID)	Sea transport (IMDG)	Air (ICAO/IATA)
UN number	UN 1133	UN 1133	UN 1133
UN proper shipping name	ADHESIVES containing flammable liquid	ADHESIVES containing flammable liquid	ADHESIVES containing flammable liquid
Transport hazard class(es)	3	3	3
Packing group	III	III	III
Environmental hazards	Not applicable	Not classified as a Marine Pollutant.	Not applicable
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	Listed: Phenyl glycidyl ether
NIOSH Occupational Carcinogen List	Listed: Phenyl glycidyl ether
EPCRA Section 313	All chemicals are not listed
CWA 307- Toxic	All chemicals are not listed
CERCLA - Hazardous Substances	All chemicals are not listed
CWA Section 311 List of Hazardous Substances	All chemicals are not listed
US State Regulations	
Proposition 65 (California)	Listed: Phenyl glycidyl ether
Massachusetts, New Jersey, Pennsylvania, Rhode Island- State Right to Know Lists	Listed: Phenyl glycidyl ether; Acetone
New York -State Right to Know Lists	Listed: Phenyl glycidyl ether; Acetone
Minnesota - State Right to Know Lists	Listed: Phenyl glycidyl ether; Acetone
Massachusetts – Toxic Use reduction act	Listed: Phenyl glycidyl ether; Acetone
Non-Regional	
IARC Monographs	Listed: Phenyl glycidyl ether IARC Classification: Group 2B.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Not applicable – V1.0

Version	1.0
Revision Date	27 January 2023
Date of First Issue	27 January 2023

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

References:

EU Data: Harmonised Classification(s) for Acetone (CAS No. 67-64-1) and Phenyl glycidyl ether (CAS No. 122-60-1).
Existing ECHA registration(s) for Acetone (CAS No. 67-64-1) and Phenyl glycidyl ether (CAS No. 122-60-1).
IARC Monographs

Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200	**Classification Procedure**
Flammable Liquid, Category 3	Expert judgement - Flash point
Eye Irritation, Category 2	Threshold Calculation
Skin sensitizer, Category 1	Threshold Calculation
Carcinogen, Category 1B	Threshold Calculation

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
EU	European Union
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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