

Safety Data Sheet

M-Bond 450 Part A




ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP)
& 2020/878

www.vpgsensors.com
Date of issue: 07/02/2023
Date of First Issue: 20/03/2012
Version 4.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier		
Product name	M-Bond 450 Part A	
Product code	Not applicable	
Unique Formula Identifier (UFI)	Not applicable	
Nanoform	The product does not contain nanoparticles.	
1.2 Relevant identified uses of the substance or mixture and uses advised against		
Identified Use(s)	Adhesive	
Uses advised against	Anything other than the above.	
1.3 Details of the supplier of the safety data sheet		
Company Identification	VISHAY MEASUREMENTS GROUP GMBH Tatschenweg 1 74078 Heilbronn Deutschland	
Telephone	+49 (0) 7131 39099-0	
Fax	+49 (0) 7131 39099-229	
E-mail (competent person)	mm.de@vpgsensors.com	
1.4 Emergency telephone number		
National Poisons Information Service (United Kingdom)	+44 (0) 3448 920111	24 hr. emergency phone number Healthcare Professionals ONLY
NHS 24	111	Members of Public
Languages spoken	(00-1) 703-527-3887 All official European languages.	CHEMTREC (24 hours)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture		
2.1.1 Regulation (EC) No. 1272/2008 (CLP)	Flam. Liq. 3; H226 Eye Irrit. 2; H319 Carc. 1B; H350	
2.2 Label elements	According to Regulation (EC) No. 1272/2008 (CLP)	
Product name	M-Bond 450 Part A	
Hazard Pictogram(s)	  	
Signal Word(s)	DANGER	
Contains:	Phenyl glycidyl ether	
Hazard Statement(s)	H226: Flammable liquid and vapour. H319: Causes serious eye irritation. H350: May cause cancer.	
Precautionary Statement(s)	P201: Obtain special instructions before use.	

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P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243: Take action to prevent static discharges.
P280: Wear protective gloves/eye protection/face protection.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P501: Dispose of contents in accordance with local, state or national legislation.

Supplemental information

EUH208: Contains: Phenyl glycidyl ether May produce an allergic reaction.

2.3 Other hazards

Vapours can form explosive mixtures with air.

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 classification
Butanone	1 - 10	78-93-3	201-159-0	Not yet assigned in the supply chain	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336 EUH066: Repeated exposure may cause skin dryness or cracking.
Phenyl glycidyl ether	0.05 - 0.1	122-60-1	204-557-2	Not yet assigned in the supply chain	Acute Tox. 4; H302 Skin Irrit. 2; H315 Acute Tox. 4; H332 Skin Sens. 1; H317 STOT SE 3; H335 Muta. 2 H341 Aquatic Chronic 3; H412 Carc. 1B; H350

Note: For full text of H phrases see section 16.

SECTION 4: First aid measures



4.1 Description of first aid measures Self-protection of the first aider

Inhalation

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.

Skin contact

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor if you feel unwell.

Eye 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.

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.

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- | | | |
|------------|---|---|
| 4.2 | Most important symptoms and effects, both acute and delayed | Causes serious eye irritation. Suspected of causing cancer. |
| 4.3 | Indication of any immediate medical attention and special treatment needed | Treat symptomatically. |

SECTION 5: Firefighting measures

- | | | |
|------------|--|---|
| 5.1 | Extinguishing media | As appropriate for surrounding fire. Extinguish preferably with foam, carbon dioxide or dry chemical. |
| | Suitable extinguishing media | |
| | 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 | 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 lammable liquid and vapour. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. Sealed containers may rupture explosively if hot. |
| 5.3 | Advice for firefighters | 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

- | | | |
|------------|--|---|
| 6.1 | Personal precautions, protective equipment and emergency procedures | Ensure adequate ventilation Stop leak if safe to do so. In case of leakage, eliminate all ignition sources. 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. |
| 6.2 | Environmental precautions | Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. |
| 6.3 | 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. |
| 6.4 | Reference to other sections | See Section: 8, 13 |

SECTION 7: Handling and storage

- | | | |
|------------|---|---|
| 7.1 | 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 action to prevent static discharges. 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 and bond container and receiving equipment. |
| 7.2 | 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. |
| | Storage life | Stable under normal conditions |

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7.3 Incompatible materials
Specific end use(s)

Keep away from: Strong oxidising agents, Strong acids and alkali.
See Section: 1.2.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.1.1 Occupational exposure limits

United Kingdom

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m ³)	STEL (ppm)	STEL (mg/m ³)	Note
Ethyl methyl ketone	78-93-3	200	600	300	899	Sk, BMGV

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

Notations:

Sk: Can be absorbed through skin.

BMGV: Biological monitoring guidance value

Ireland

SUBSTANCE	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
		ppm	mg/m ³	ppm	mg/m ³	
Ethyl methyl ketone	78-93-3	200	600	300	900	Sk, IOELV
Phenyl-2,3-epoxypropyl ether	122-60-1	0.1	0.6	-	-	Carc. 1B

Source: 2021 Code of Practice for Safety, Health and Welfare at Work (Chemical Agents) Regulation (2001 – 2021) and the Safety, Health and Welfare at Work (Carcinogens) Regulations (2001 – 2019); Health and Safety Authority

Notations:

IOELV: Indicative Occupational Exposure Limit Value

Sk: Can be absorbed through skin.

8.1.2 Biological Limit Value

SUBSTANCE	CAS No.	Biological monitoring guidance value	Sampling Time
Ethyl methyl ketone	78-93-3	70 µmol butan-2-one/L in urine	Post shift

Source: Bmgv: Biological monitoring guidance value (UK HSE EH40)

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.

Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems.

Eyewash facilities should be stationed close to workplace where possible.

8.2.2 Individual protection measures, such as personal protective equipment

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.

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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)

Thermal hazards

not applicable

8.2.3 Environmental exposure controls

Avoid release to the environment. Do not allow to enter drains, sewers or watercourses.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Colour	Not established
Odour	Not established
Melting point and freezing point	Not established
Boiling point or initial boiling point and boiling range	Not established
Flammability	Flammable liquid and vapour.
Lower and upper explosion limit or lower and upper flammability limit	Not established
Flash point	Not established
Auto-ignition temperature	Not established
Decomposition temperature	Not established
pH	Not established
Kinematic viscosity	Not established
Solubility	Not established

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Partition coefficient: n-octanol/water (log value)	not applicable - Mixture
Vapour pressure	Not established
Density and/or relative density	Not established
Relative vapour density	Not established
Particle characteristics	Not applicable - Liquid

9.2 Other information

Explosive properties	Not explosive. Vapours can form explosive mixtures with air.
Oxidising properties	Not established

SECTION 10: Stability and reactivity

10.1 Reactivity	Stable under normal conditions
10.2 Chemical stability	Stable under normal conditions Hazardous polymerisation will not occur.
10.3 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.
10.4 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 action to prevent static discharges.
10.5 Incompatible materials	Strong oxidising agents, Strong acids and alkali.
10.6 Hazardous decomposition products	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. When heated to soldering temperatures, the solvents are evaporated and rosin may be thermally degraded. Decomposition products: Carbon monoxide, Carbon dioxide, aliphatic aldehydes, aromatic aldehydes, Acids and terpenes.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008	
Acute toxicity	
Ingestion	Mixture: Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: estimated estimated LD50 > 2000 mg/kg bw/day
Inhalation	Mixture: Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: LC50 >5 mg/l (Dust/Mist)
Skin contact	Mixture: Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: estimated LD50 > 2000 mg/kg bw/day
Skin corrosion/irritation	Based upon the available data, the classification criteria are not met.
Serious eye damage/irritation	Mixture: Eye Irrit. 2; H319: Causes serious eye irritation.
Butanone	Eye Irrit. 2; H319: Causes serious eye irritation. Test Result: Irritating to eyes. (OECD 405)
Respiratory or skin sensitisation	Harmonised Classification/ ECHA registration dossier
Phenyl glycidyl ether	EUH208: Contains: Phenyl glycidyl ether May produce an allergic reaction. Skin Sens. 1; H317: May cause an allergic skin reaction. Test Result Adverse effects observed - Sensitising (OECD 406)
Germ cell mutagenicity	Harmonised Classification/ ECHA registration dossier
Carcinogenicity	Mixture: Based upon the available data, the classification criteria are not met. Mixture: Carc. 1B; H350: May cause cancer.
Phenyl glycidyl ether	Carc. 1B; H350: May cause cancer. 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.

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11.2	Information on other hazards	
11.2.1	Endocrine disrupting properties	This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.
11.2.2	Other information	None

SECTION 12: Ecological information

12.1	Toxicity	Based upon the available data, the classification criteria are not met. estimated Mixture LC50 >100 mg/L (Fish)
12.2	Persistence and degradability	No data for the mixture as a whole. Butanone Readily biodegradable (according to OECD criteria). Degradation rate (%): 98 (28 days OECD 301D)
12.3	Bioaccumulative potential	Phenyl glycidyl ether Not readily biodegradable (OECD 302C) No data for the mixture as a whole. Butanone Low bioaccumulative potential
12.4	Mobility in soil	Phenyl glycidyl ether No data available No data for the mixture as a whole. Butanone Adsorption to solid soil phase is not expected.
12.5	Results of PBT and vPvB assessment	Phenyl glycidyl ether The substance is predicted to have high mobility in soil. Koc at 25°C = 41.09, Log Koc = 1.61 (Q)SAR
12.6	Endocrine disrupting properties	Not classified as PBT or vPvB. This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.
12.7	Other adverse effects	None known

SECTION 13: Disposal considerations

13.1	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.
	Waste classification according to Directive 2008/98/EC (Waste Framework Directive)	HP3 - Flammable HP4 - Irritant HP7 - Carcinogenic

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA/ICAO
14.1	UN number or ID number	UN 1133	UN 1133	UN 1133
14.2	UN proper shipping name	ADHESIVES containing flammable liquid	ADHESIVES containing flammable liquid	ADHESIVES containing flammable liquid
14.3	Transport hazard class(es)	3	3	3
14.4	Packing group	III	III	III
14.5	Environmental hazards	Not applicable	Not applicable	Not classified as a Marine Pollutant.
14.6	Special precautions for user	See Section: 2		
14.7	Maritime transport in bulk according to IMO instruments	Not applicable	Not applicable	Not applicable
14.8	Additional information	No information available.		

SECTION 15: REGULATORY INFORMATION

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

Use restriction according to REACH annex XVII, no.: Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive]

Restrictions of occupation:

To follow:

Not restricted
P5c

Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).

Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work

15.1.2 National regulations

Germany

Water hazard class (WGK)

Water hazard class: 1 (Self classification)

15.2 Chemical Safety Assessment

A REACH chemical safety assessment has not been carried out.

SECTION 16: Other information

The following sections contain revisions or new statements: V4.0 - New SDS Regulation 2020/878 format, all sections have been updated to include new information. Please review SDS with care.

References:

Harmonised Classification(s) for Butanone (CAS No. 78-93-3) and Phenyl glycidyl ether (CAS No. 122-60-1).

Existing ECHA registration(s) for Butanone (CAS No. 78-93-3) and Phenyl glycidyl ether (CAS No. 122-60-1).

EU Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878

Classification of the substance or mixture According to Regulation (EC) No. 1272/2008 (CLP)	Classification procedure
Flam. Liq. 3; H226	Expert judgement Flash point
Eye Irrit. 2; H319	Threshold Calculation
Carc. 1B; H350	Threshold Calculation

Legend

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
BCF	Bioconcentration factor (BCF)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DNEL	Derived no effect level
EU	European Union
EC	European Community
ECHA	European Chemicals Agency
EN	European Standard
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
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
NOAEC	No observed adverse effect concentration
NOEC	No Observed Effect Concentration
OECD	Organisation for Economic Cooperation and Development
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail

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TWA Time Weighted Average
STEL Short term exposure limit
vPvB very Persistent and very Bioaccumulative
UN United Nations

Hazard classification / Classification code:

Flam. Liq. 3; Flammable liquid, Category 3
Acute Tox. 4; Acute toxicity, Category 4
Skin Irrit. 2; Skin corrosion/irritation, Category 2
Skin Sens. 1; Skin Sensitisation, Category 1
Eye Irrit. 2; eye Irritation, Category 2
Acute Tox. 4; Acute toxicity, Category 4
STOT SE 3; Specific target organ toxicity — single exposure, Category 3

STOT SE 3; Specific target organ toxicity — single exposure, Category 3
Muta. 2; Germ cell mutagenicity, Category 2
Carc. 1B; Carcinogenicity, Category 1B
Aquatic Chronic 3; Hazardous to the aquatic environment, Chronic ,
Category 3

Hazard Statement(s)

H226: Flammable liquid and vapour.
H302: Harmful if swallowed.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.

H336: May cause drowsiness or dizziness.
H341: Suspected of causing genetic defects.
H350: May cause cancer.
H412: Harmful 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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