

SAFETY DATA SHEET

Version: 4.2
Date of Issue: 07 August 2020
Date of First Issue: 23 October 2015

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ACCORDING TO OSHA HCS (29 CFR 1910.1200)

SECTION 1: IDENTIFICATION

Product identifier used on the label	M-Bond 43-B	
Other means of identification	Not applicable	
Recommended use of the chemical and restrictions on use		
Recommended use	Adhesives.	
Restrictions on use	None known.	
Details of the supplier of the safety data sheet		
Supplier	VISHAY MEASUREMENTS GROUP, INC.	
Address of Supplier	Post Office Box 27777 Raleigh, NC 27611 USA	
Telephone	+1 919-365-3800	
Fax	+1 919-365-3945	
E-Mail (competent person)	mm.us@vishaypg.com	
Emergency telephone number	1-800-424-9300	CHEMTREC (24 hours)

SECTION 2: HAZARD(S) IDENTIFICATION

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

Physical hazards

Health hazards

Flammable Liquid, Category 2
Aspiration hazard, Category 1
Skin Corrosion/Irritation, Category 2
Skin Sensitisation, Category 1
Eye Irritation, Category 2
Specific target organ toxicity — single exposure, Category 3
Specific target organ toxicity — single exposure, Category 2
Specific target organ toxicity — repeated exposure, Category 2
Hazardous to the aquatic environment, Chronic, Category 3

Environmental hazards

Hazard Symbol



Signal Word(s)

DANGER

Hazard Statement(s)

Highly flammable liquid and vapour.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May cause damage to organs.
Causes damage to organs through prolonged or repeated exposure.
Harmful to aquatic life with long lasting effects.

Precautionary Statement(s)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.

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Do not breathe vapour.
 Wear protective gloves/protective clothing/eye protection/face protection.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 If skin irritation occurs: Get medical advice/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.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
 IF exposed or concerned: Call a POISON CENTER/doctor.

Other hazards

None known

Percent of the mixture consists of ingredient(s) of unknown acute toxicity:

0%

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances Not applicable

Mixtures Substances in preparations / mixtures

Chemical identity of the substance	%W/W	CAS No.	EC No.	Hazard classification
Methyl ethyl ketone	35 - 39	78-93-3	201-159-0	Flammable Liquid, Category 2 Eye Irritation, Category 2 Specific target organ toxicity — single exposure, Category 3
Xylene	20 - 25	1330-20-7	215-535-7	Flammable Liquid, Category 3 Acute toxicity, Category 4 – Dermal Acute toxicity, Category 4 – Inhalation Skin Corrosion/Irritation, Category 2 Aspiration hazard, Category 1 Eye Irritation, Category 2 Specific target organ toxicity — single exposure, Category 3 Specific target organ toxicity — repeated exposure, Category 2
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	15 - 20	25068-38-6	500-033-5	Skin Corrosion/Irritation, Category 2 Skin Sensitisation, Category 1 Eye Irritation, Category 2 Hazardous to the aquatic environment, Chronic, Category 2
Diacetone alcohol	10 - 15	123-42-2	204-626-7	Flammable Liquid, Category 3 Eye Irritation, Category 2 Specific target organ toxicity — single exposure, Category 3
4,4'-Sulfonyldianiline	5 - 10	80-08-0	201-248-4	Acute toxicity, Category 4 – Oral Specific target organ toxicity — single exposure, Category 2 Specific target organ toxicity — repeated exposure, Category 2 Hazardous to the aquatic environment, Chronic, Category 2
Rheological Additive (Quaternary ammonium compounds, benzyl (hydrogenated tallow alkyl) dimethyl, chlorides, compds. with hectorite)	< 2	71011-26-2	275-126-4	Not classified

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SECTION 4: FIRST AID MEASURES



Description of first aid measures

Self-protection of the first aider

Do not breathe vapour. Wear suitable protective clothing. Wear suitable respiratory protective equipment if exposure to high levels of material are likely. Do not use mouth-to-mouth resuscitation.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Apply artificial respiration only if patient is not breathing or under medical supervision. Call a POISON CENTER/doctor if you feel unwell.

Skin Contact

IF ON SKIN: Remove contaminated clothing and wash all affected areas with plenty of water. Contaminated clothing should be thoroughly cleaned. 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: Rinse mouth. Do not give anything by mouth to an unconscious person. Do NOT induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs. Immediately call a POISON CENTER/doctor.

Most important symptoms and effects, both acute and delayed

May be fatal if swallowed and enters airways. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness and dizziness. May cause damage to organs through prolonged or repeated exposure.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
IF SWALLOWED: Do NOT induce vomiting.

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

Highly flammable liquid and vapour. May decompose in a fire giving off toxic fumes. Carbon dioxide and 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.

Special protective equipment and precautions 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. Do not breathe vapour. 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.

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.

Methods and material for containment and cleaning up

Ensure suitable personal protection (including respiratory protection) during removal of spillages. Contain spillages. Use non-sparking equipment when picking up flammable spill. Use waterspray to 'knock down' vapour. Adsorb

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spillages onto sand, earth or any suitable adsorbent material. Do NOT absorb in saw-dust or other combustible absorbents. 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

Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Do not breathe vapour. 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. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge.

Conditions for safe storage, including any incompatibilities

Ground/bond container and receiving equipment. Keep only in original container. 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. Keep away from direct sunlight.

Storage temperature
 Storage life
 Incompatible materials

Ambient.
 Stable under normal conditions.
 Keep away from: Oxidizing agents, Reducing agents, Amines, Ammonia, strong bases, Acids and Isocyanates.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

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	590	300 [^]	885 [^]	NIOSH
		200	590	-	-	OSHA
		200	-	300	-	ACGIH
Xylene	1330-20-7	100	435	150 [^]	655 [^]	NIOSH
		100	435	-	-	OSHA
		100	-	150	-	ACGIH, A4
Diacetone alcohol	123-42-2	50	240	-	-	NIOSH
		50	240	-	-	OSHA
		50	-	-	-	ACGIH

Note: OSHA PELs 1910.1000 TABLE Z-1/ NIOSH RELs / ACGIH TLVs

[^]NIOSH average value of 15 minutes.

A4: Not Classifiable as a Human Carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of the lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.

The other components listed in Section 3 do not have occupational exposure limits.

Biological Exposure Indices

SUBSTANCE	CAS No.	Determinant	Biological Exposure Indices	Sampling Time	Note
Ethyl methyl ketone	78-93-3	Ethyl methyl ketone in urine	2 mg/L	End of shift	Ns
Xylene, o-,m-,p- or mixed isomers	1330-20-7	Methylhippuric acids in urine.	15 g/g Creatinine	End of shift	-

Source: 2015 ACGIH Biological Exposure Indices (BEIs)

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Ns – Nonspecific

The other components listed in Section 3 do not have biological exposure indicies.

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 bottles should be available.

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. Contaminated clothing should be laundered before reuse. Do not eat, drink or smoke at the work place.

Eye/face protection



Wear eye protection with side protection (EN166). Wear protective eye glasses for protection against liquid splashes. 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: 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 self contained breathing apparatus may be appropriate.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Amber Coloured liquid.
Odor	Acetone Odour
Odor Threshold	Not available.
pH	Not established.
Melting Point/Freezing Point	-86°C
Initial boiling point and boiling range	80°C
Flash Point	-9 °C [Open cup]
Evaporation rate (Butyl acetate = 1)	2.7 (BuAc = 1)
Flammability (solid, gas)	Not applicable - Liquid
Upper/lower flammability or explosive limits	Flammable Limits (Lower) (%v/v): 1 Flammable Limits (Upper) (%v/v): 11.4
Vapour pressure	78 @ 20°C (mmHg)
Vapour density	3.5 (Air = 1)
Relative density	0.92 (H2O = 1)
Solubility(ies)	Slightly soluble (Water): < 20%
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.

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SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Highly flammable liquid and vapour. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. Avoid contact with: Strong oxidising agents (May cause fire). Hazardous polymerisation will not occur.
Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from direct sunlight.
Incompatible materials	Keep away from: Oxidizing agents, Reducing agents, Amines, Ammonia, strong bases, Acids and Isocyanates.
Hazardous decomposition product(s)	May decompose in a fire giving off toxic fumes. Carbon dioxide and Carbon monoxide.

SECTION 11: TOXICOLOGICAL INFORMATION

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.
Acute toxicity - Inhalation	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 20.0 mg/l.
Acute toxicity - 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 Corrosion/Irritation, Category 2; Causes skin irritation.
Serious eye damage/irritation	Eye Irritation, Category 2; Causes serious eye irritation.
Respiratory or skin sensitization	Skin Sensitisation, Category 1; May cause an allergic skin reaction.
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 2; May cause damage to organs. Specific target organ toxicity — single exposure, Category 3; May cause respiratory irritation. May cause drowsiness or dizziness.
STOT - repeated exposure	Specific target organ toxicity — repeated exposure, Category 2; May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	Aspiration hazard, Category 1; May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Information on likely routes of exposure	
Inhalation	Possible – accidental exposure
Ingestion	Unlikely – accidental exposure
Skin Contact	Possible – accidental exposure
Eye Contact	Unlikely – accidental exposure
Early onset symptoms related to exposure	May be fatal if swallowed and enters airways. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness and dizziness.
Delayed health effects from exposure	May cause damage to organs through prolonged or repeated exposure.
Other information	
NTP Report on Carcinogens	All chemicals are not listed
IARC Monographs	Xylene: Group 3 - Not classifiable as to its carcinogenicity to humans 4,4'-Sulfonyldianiline: Group 3 - Not classifiable as to its carcinogenicity to humans

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OSHA Designated Carcinogen

All chemicals are not listed

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic Chronic 3: Harmful to aquatic life with long lasting effects. Estimated Mixture LC50 >10 ≤ 100 mg/l (Fish)
Persistence and degradability	Part of the components are poorly biodegradable.
Bioaccumulative potential	The product has low potential for bioaccumulation.
Mobility in soil	The product is predicted to have low mobility in soil. (Insoluble in water.)
Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

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. Containers of this material may be hazardous when empty since they retain product residue.
Additional Information	Dispose of contents in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

	ADR/RID	IMDG	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	II	II	II
Environmental hazards	Not classified	Not classified as a Marine Pollutant.	Not classified
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.		
Special precautions for user	See Section: 2		
Additional Information	None Known		

SECTION 15: REGULATORY INFORMATION

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

US Federal Regulations

TSCA (Toxic Substance Control Act)

Methyl ethyl ketone: Subject to 25,000 lb reporting threshold
Xylene: Subject to 25,000 lb reporting threshold
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight < 700): Exempt from reporting under CDR
Diacetone Alcohol: Subject to 25,000 lb reporting threshold
4,4'-Sulfonyldianiline: Subject to 25,000 lb reporting threshold
Rheological Additive (Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlorides, compds. with hectorite): Subject to 25,000 lb reporting threshold

EPCRA/SARA Section 302 Extremely Hazardous Substances

All chemicals are not listed

EPCRA Section 313 Toxics Release Inventory (TRI) Program

Xylene: De Minimis limit: 1%

NIOSH Occupational Carcinogen List

All chemicals are not listed

OSHA List of highly hazardous chemicals, toxics and reactives

All chemicals are not listed

NTP Report on Carcinogens (RoC) List

All chemicals are not listed

Poison Prevention Packaging Act

Xylene: Substance requiring special packaging - Solvents for paint or other similar surface-coating material

US State Regulations

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California State, Proposition 65 List	All chemicals are not listed
California State, Safer Consumer Products Regulations	Methyl ethyl ketone: Candidate Chemicals List Xylene: Initial Candidate Chemicals List
Maine State, Toxic Chemicals in Children's Products Act	All chemicals are not listed
New Jersey State Worker and Community RTK Act	Methyl ethyl ketone: RTKHSL. SHHSL Xylene: RTKHSL. SHHSL Diacetone Alcohol: RTKHSL
Pennsylvania State, Worker and Community RTK Act	Methyl ethyl ketone: Hazardous Substance List. Environmental Hazard List Xylene: Hazardous Substance List. Environmental Hazard List Diacetone Alcohol: Hazardous Substance List
Rhode Island State, Hazardous Substances RTK Act	Methyl ethyl ketone: Hazardous Substance List Xylene: Hazardous Substance List Diacetone Alcohol: Hazardous Substance List
Non-Regional	
IARC Monographs, List of Classifications	Xylene: Group 3 4,4'-Sulfonyldianiline: Group 3

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Updated version and date. Please review SDS with care.

The following sections have updates indicated by-

Version	4.1
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References:

Existing Safety Data Sheet (SDS), EU Data: Harmonised Classification(s) for Ethyl methyl ketone (CAS# 78-93-3), Xylene (CAS# 1330-20-7), Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight < 700) (CAS# 25068-38-6), Diacetone alcohol (CAS# 123-42-2) and 4,4'-Sulfonyldianiline (CAS# 80-80-0), Existing ECHA registration(s) for Ethyl methyl ketone (CAS# 78-93-3), Xylene (CAS# 1330-20-7), Diacetone alcohol (CAS# 123-42-2) and 4,4'-Sulfonyldianiline (CAS# 80-80-0).

GHS Classification of the substance or mixture	Classification Procedure
Flammable Liquid, Category 2	Flash Point [Open cup] Test Result/ Boiling Point (°C)
Skin Corrosion/Irritation, Category 2	Threshold Calculation
Skin Sensitisation, Category 1	Threshold Calculation
Eye Irritation, Category 2	Threshold Calculation
Aspiration hazard, Category 1	Estimated Viscosity
Specific target organ toxicity — single exposure, Category 3	Threshold Calculation
Specific target organ toxicity — single exposure, Category 2	Threshold Calculation
Specific target organ toxicity — repeated exposure, Category 2	Threshold Calculation
Hazardous to the aquatic environment, Chronic, Category 3	Summation Calculation

LEGEND

ACGIH: American Conference of Governmental Industrial Hygienists
BEI: Biological Exposure Indices (ACGIH)
IARC: International Agency for Research on Cancer
Irr: Irritation
NIOSH: National Institute of Occupational Safety and Health
NTP: National Toxicology Program
OSHA: The Occupational Safety & Health Administration
PBT: Persistent, Bioaccumulative and Toxic
PEL: Permissible exposure limit

REL: Recommended exposure limit
SCL: Specific Concentration Limit
Skin^o: Risk of overexposure via dermal contact
STEL: Short Term Exposure Limit
TLV: Threshold Limit value
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average
URT: Upper respiratory tract
vPvB: very Persistent and very Bioaccumulative

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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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