

# SAFETY DATA SHEET

Revision: 1.0 Date: 08.10.2015


**ACCORDING TO OSHA HCS (29 CFR 1910.1200)**

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## 1. SECTION 1: IDENTIFICATION

<b>1.1 Product identifier</b>	
Product Name	M-Bond 300 Resin
Chemical Name	Mixture
CAS No.	Mixture
EINECS No.	Mixture
REACH Registration No.	None assigned.
<b>1.2 Relevant identified uses of the substance or mixture and uses advised against</b>	
Identified Use(s)	Adhesives, sealants
Uses Advised Against	None known.
<b>1.3 Details of the supplier of the safety data sheet</b>	
Company Identification	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@vishaypg.com
<b>1.4 Emergency telephone number</b>	1-800-424-9300 CHEMTREC

## 2. SECTION 2: HAZARDS IDENTIFICATION

<b>2.1 Classification of the substance or mixture</b>	
<b>2.1.1 GHS Classification</b>	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335 Repr. 2; H361d STOT RE 1; H372 Aquatic Chronic 3; H412
<b>2.2 Label elements</b>	
Product Name	GHS Classification M-Bond 300 Resin
Hazard Pictogram(s)	
Signal Word(s)	Danger
Contains:	Styrene
Hazard Statement(s)	H226: Flammable liquid and vapour. H315: Causes skin irritation. H319: Causes serious eye irritation. H335: May cause respiratory irritation. H361d: Suspected of damaging the unborn child. H372: Causes damage to organs through prolonged or repeated exposure. H412: Harmful to aquatic life with long lasting effects.
Precautionary Statement(s)	P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P201: Obtain special instructions before use. P260: Do not breathe vapour.

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P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
P312: Call a POISON CENTER/doctor if you feel unwell.

Additional Information

EUH208: Contains: Cobalt bis(2-ethylhexanoate). May produce an allergic reaction.

## 2.3 Other hazards

None.

### 3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substances Not applicable

#### 3.2 Mixtures

GHS Classification

Chemical identity of the substance	%W/W	CAS No.	EC No.	Hazard classification
Vinyl Ester Resin	50 - 55	-	-	Not classified
Styrene	< 50	100-42-5	202-851-5	Flam. Liq. 3; H226 Asp. Tox. 1; H304 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Acute Tox. 4; H332 STOT SE 3; H335 Repr. 2; H361d STOT RE 1; H372 Aquatic Chronic 3; H412
Silica, Amorphous, Fumed, Cryst.-Free	< 5	112945-52-5	-	Not classified
Cobalt bis(2-ethylhexanoate)	< 1	136-52-7	205-250-6	Acute Tox. 4; H302 Skin Sens. 1; H317 Repr. 2; H361 Aquatic Acute 1; H400 Aquatic Chronic 1; H410

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

### 4. SECTION 4: FIRST AID MEASURES



#### 4.1 Description of first aid measures

Inhalation

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.

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 if necessary. Call a POISON CENTER/doctor if you feel unwell. IF exposed or concerned: Get medical advice/attention.

Skin Contact

IF ON SKIN (or hair): 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. Call a POISON CENTER/doctor if you feel unwell. IF exposed or concerned: Get medical advice/attention.

Eye Contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

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Ingestion	lenses, if present and easy to do. Continue rinsing. Get medical attention if eye irritation develops or persists. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Do not give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.
<b>4.2 Most important symptoms and effects, both acute and delayed</b>	Causes skin irritation. Causes eye irritation. May cause respiratory irritation. Suspected of damaging the unborn child. Causes damage to organs through prolonged or repeated exposure. May produce an allergic reaction.
<b>4.3 Indication of any immediate medical attention and special treatment needed</b>	Treat symptomatically.

### 5. SECTION 5: FIREFIGHTING MEASURES

<b>5.1 Extinguishing media</b> Suitable Extinguishing media	As appropriate for surrounding fire. Extinguish preferably with foam, carbon dioxide or dry chemical.
Unsuitable extinguishing media	Do not use water.
<b>5.2 Special hazards arising from the substance or mixture</b>	Flammable liquid. May decompose in a fire giving off toxic fumes. Oxides of carbon and hydrocarbons. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. May polymerise on heating. Pressure buildup can be rapid.
<b>5.3 Advice for fire-fighters</b>	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.

### 6. SECTION 6: ACCIDENTAL RELEASE MEASURES

<b>6.1 Personal precautions, protective equipment and emergency procedures</b>	Ensure adequate ventilation. Stop leak if safe to do so. Eliminate all ignition sources if safe to do so. Avoid all contact. Do not breathe vapour. Wear suitable respiratory protection. Use personal protective equipment as required. See Section: 8. The vapour is heavier than air; beware of pits and confined spaces.
<b>6.2 Environmental precautions</b>	Avoid release to the environment. Prevent liquid entering sewers, basements and workpits; vapour may create explosive atmosphere. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.
<b>6.3 Methods and material for containment and cleaning up</b>	Ensure suitable personal protection (including respiratory 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 adsorb onto sawdust or other combustible materials. 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.
<b>6.4 Reference to other sections</b>	See Section: 8, 13

### 7. SECTION 7: HANDLING AND STORAGE

<b>7.1 Precautions for safe handling</b>	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Ensure adequate ventilation. Avoid all contact. 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. Take precautionary measures against static discharge. Use only non-sparking tools. Do not use compressed air for filling, discharging or handling.
<b>7.2 Conditions for safe storage, including any incompatibilities</b>	Ground/bond container and receiving equipment. Store in a well-ventilated place. Keep container tightly closed. Keep away from fire, sparks and heated surfaces.
Storage temperature	Ambient. Keep at a temperature not exceeding (°C): 25.
Storage life	Stable under normal conditions. Monitor stored material for loss of inhibitors.
Incompatible materials	Keep away from: Copper, copper alloy, Brass and Polymerisation catalysts such

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as peroxy or azo compounds, strong acids, alkalis, oxidising agents and metal salts.

7.3 Specific end use(s) Adhesives, sealants

### 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/m <sup>3</sup> )	STEL (ppm)	STEL (mg/m <sup>3</sup> )	Note
Styrene	100-42-5	50	215	100*	425*	NIOSH
		-	100	-	200	OSHA
		20	-	40	-	ACGIH

Note: OSHA PELs 1910.1000 TABLE Z-1 / \*NIOSH RELs / ACGIH TLVs  
\*15 minutes average value

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

##### 8.1.2 Biological limit value

SUBSTANCE	CAS No.	Determinant	Biological Exposure Indices	Sampling Time	Note
Styrene	100-42-5	Mandelic acid plus phenylglyoxylic acid in urine.	400 mg/g Creatinine	End of shift	Ns
		Styrene in urine.	40 µg/l	End of shift	-

Source: BEI: Biological Exposure Indices (ACGIH).

Notes (See Section 16 for full definition):

Ns: Nonspecific

The other components listed in Section 3 do not have Biological Exposure Indices.

#### 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. 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.

##### 8.2.2 Individual protection measures, such as personal protective equipment (PPE)

General hygiene measures for the handling of chemicals are applicable. 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 goggles giving complete protection to eyes to protect against liquid splashes.

Skin protection



Hand protection: Wear impervious gloves. Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer. The gloves type used must be chosen based on the work activity and duration as well as concentration/quantity of material being handled. Recommended: Nitrile rubber or PVC.

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

Respiratory protection

Respiratory protection is not necessary if room is well ventilated. Wear suitable

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respiratory protective equipment if exposure to levels above the occupational exposure limit is likely. Where an air-purifying respirator is suitable, use EN141 or EN143. Recommended: Filter type A (EN141) and Filter type P2 (EN143). Have available emergency self-contained breathing apparatus or full-face airline respirator when using this chemical.

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	Opaque amber liquid
Odour	Pungent Odour
Odour threshold	0.2 ppm (Styrene)
pH	Not applicable.
Melting point/freezing point	-30°C (Styrene)
Initial boiling point and boiling range	146°C (Styrene)
Flash point	32°C [Closed cup]
Evaporation rate	0.49 (Styrene) (BuAc = 1)
Flammability (solid, gas)	Liquid - Not applicable
Upper/lower flammability or explosive limits	Flammable Limits (Upper) (%v/v): 6.1 (Styrene) Flammable Limits (Lower) (%v/v): 1.1 (Styrene)
Vapour pressure	6.7 hPa (Styrene)
Vapour density	3.6 (Air = 1) (Styrene)
Relative density	1.08 +/- 0.04 @ 25°C (Water = 1)
Solubility(ies)	Insoluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	490°C (Styrene)
Decomposition Temperature	Not available.
Viscosity	450 - 600 cps @ 25°C (Brookfield Test Result)
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

### 9.2 Other information

Not available.

## 10. SECTION 10: STABILITY AND REACTIVITY

10.1 Stability and reactivity	Unstable: Monitor stored material for loss of inhibitors.
10.2 Chemical stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	Flammable Liquid. Monitor stored material for loss of inhibitors. The following may occur: Hazardous Polymerization. Susceptible to violent exothermic polymerisation, initiated by heating or the presence of catalysts. Pressure buildup can be rapid.
10.4 Conditions to avoid	Keep away from fire, sparks and heated surfaces. Use only non-sparking tools. Monitor stored material for loss of inhibitors. Keep at a temperature not exceeding (°C): 65 (Hazardous Polymerization).
10.5 Incompatible materials	Keep away from: Copper, copper alloy, Brass and Polymerisation catalysts such as peroxy or azo compounds, strong acids, alkalis, oxidising agents and metal salts.
10.6 Hazardous decomposition product(s)	May decompose in a fire giving off toxic fumes. Oxides of carbon and Hydrocarbons.

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## 11. SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 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.

Inhalation

Based upon the available data, the classification criteria are not met.  
Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 20 mg/l.

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 Irrit. 2: Causes skin irritation.

#### Serious eye damage/irritation

Eye Irrit. 2: Causes serious eye irritation.

#### Respiratory or skin sensitization

EUH208: Contains: Cobalt bis(2-ethylhexanoate). May produce an allergic 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

Repr. 2: Suspected of damaging the unborn child.

#### STOT - single exposure

Based upon the available data, the classification criteria are not met.

#### 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

No additional information available.

Ingestion

No additional information available.

Skin Contact

Causes skin irritation.

Eye Contact

Causes serious eye irritation.

### 11.2 Other information

NTP Report on Carcinogens

No components listed.

IARC Monographs

Styrene (CAS# 100-42-5) and Cobalt bis(2-ethylhexanoate) (CAS# 136-52-7):  
Group 2B - Possibly carcinogenic to humans.

Carcinogenic according to OSHA

No components listed.

## 12. SECTION 12: ECOLOGICAL INFORMATION

### 12.1 Ecotoxicity

Aquatic Chronic 3: Harmful to aquatic life with long lasting effects.  
Estimated Mixture LC50 >10 ≤ 100 mg/l (Fish)

### 12.2 Persistence and degradability

No data for the mixture as a whole.

### 12.3 Bioaccumulative potential

The product has low potential for bioaccumulation.

### 12.4 Mobility in soil

The product is predicted to have low mobility in soil (Insoluble in water).

### 12.5 Other adverse effects

Not classified as PBT or vPvB.

## 13. SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

Do not release undiluted and unneutralised to the sewer. Dispose of contents in accordance with local, state or national legislation. This material and its container must be disposed of as hazardous waste. Dispose of wastes in an approved waste disposal facility. Containers of this material may be hazardous when empty since they retain product residue. Can form explosive mixture with air particularly in empty uncleaned receptacles. Dispose of empty containers and wastes safely. Do not use compressed air for filling, discharging or handling. Recycle only completely emptied packaging.

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### 14. SECTION 14: TRANSPORT INFORMATION

	ADR/RID / IMDG / IATA
14.1 UN number	UN 1866
14.2 UN proper shipping name	RESIN SOLUTION
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazards	Not 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 73/78 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 National regulations	
OSHA Occupational Safety and Health Standards	Not listed.
Toxic Substances Control Act Inventory Status	All components of this material are listed on the US Toxic Substances Control Act (TSCA) Inventory.
15.1.2 European regulations	
Substances of Very High Concern (SVHCs)	None.
Authorisations and/or Restrictions On Use	None.
Wassergefährdungsklasse (Germany)	Water hazard class: 2
15.2 Chemical Safety Assessment	Not available.

### 16. SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

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**References:** Existing Safety Data Sheet (SDS). Harmonised Classification(s) for Styrene (CAS# 100-42-5). Existing ECHA registration(s) for Styrene (CAS# 100-42-5) and Cobalt bis(2-ethylhexanoate) (CAS# 136-52-7), and the Classification and Labelling Inventory for Silicon Dioxide (CAS# 7631-86-9).

GHS Classification of the substance or mixture	Classification Procedure
Flam. Liq. 3; H226	Flash Point Test Result
Skin Irrit. 2; H315	Threshold Calculation
Eye Irrit. 2; H319	Threshold Calculation
STOT SE 3; H335	Threshold Calculation
Repr. 2; H361d	Threshold Calculation
STOT RE 1; H372	Threshold Calculation
Aquatic Chronic 3; H413	Summation Calculation

#### LEGEND

ACGIH: American Conference of Governmental Industrial Hygienists  
BEIs: Biological Exposure Indices  
IARC: International Agency for Research on Cancer  
LTEL: Long Term Exposure Limit  
NIOSH: National Institute for Occupational Safety and Health  
NTP: National Toxicology Program  
OSHA: The Occupational Safety & Health Administration

PBT: Persistent, Bioaccumulative and Toxic  
PELs: Permissible Exposure Limits  
RELs: Recommended Exposure Limits  
STEL: Short Term Exposure Limit  
TLVs: Threshold limit values  
vPvB: very Persistent and very Bioaccumulative

#### Notes

Ns: Nonspecific – The determinant is nonspecific, since it is also observed after exposure to other chemicals.

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### Hazard Statement(s)

H302: Harmful if swallowed.

H304: May be fatal if swallowed and enters airways.

H317: May cause an allergic skin reaction.

H332: Harmful if inhaled.

H351: Suspected of causing cancer.

H361: Suspected of damaging fertility or the unborn child.

H361d: Suspected of damaging the unborn child.

H372: Causes damage to organs through prolonged or repeated exposure.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

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.

### Disclaimers

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### Annex to the extended Safety Data Sheet (eSDS)

No information available.