

# SAFETY DATA SHEET

Revision: 2.0 Date: 23.03.2015

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),  
1272/2008 (CLP) & 453/2010

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## 1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1.1 Product identifier**  
Product Name M-Bond Curing Agent 600/610  
Chemical Name Mixture  
CAS No. Mixture  
EINECS No. Mixture  
REACH Registration No. None assigned.
- 1.2 Recommended use of the chemical and restrictions on use**  
Identified Use(s) Adhesives.  
Uses Advised Against None known.
- 1.3 Supplier's details**  
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
- 1.4 Emergency Phone No.** 1-800-424-9300  
CHEMTREC

## 2. SECTION 2: HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

- 2.1.1 GHS Classification**  
Flam. Liq. 2; H225  
Acute Tox. 4; H302  
Skin Sens. 1; H317  
Eye Dam. 1; H318  
Resp. Sens. 1; H334  
STOT SE 3; H335  
Carc. 2; H351

### 2.2 Label elements

Product Name M-Bond Curing Agent 600/610

Hazard Pictogram(s)



Signal Word(s) Danger

Contains: Tetrahydrofuran and 1,2,4,5-Benzenetetracarboxylic Dianhydride

Hazard Statement(s)  
H225: Highly flammable liquid and vapour.  
H302: Harmful if swallowed.  
H317: May cause an allergic skin reaction.  
H318: Causes serious eye damage.  
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H335: May cause respiratory irritation.  
H351: Suspected of causing cancer.

Precautionary Statement(s) P210: Keep away from heat, hot surfaces, sparks, open flames and other

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ignition sources. No smoking.  
P201: Obtain special instructions before use.  
P304+P341: IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P342 + P311: If experiencing respiratory symptoms: Call a POISON CENTER/doctor/  
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310: Immediately call a POISON CENTER/doctor.

## Additional Information

EUH019: May form explosive peroxides.

### 2.3 Other hazards

None.

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

### 3.2 Mixtures

GHS Classification

Chemical identity of the substance	%W/W	CAS No.	EC No.	REACH Registration No.	Hazard Statement(s)
Tetrahydrofuran	85 – 90	109-99-9	203-726-8	None assigned	Flam. Liq. 2; H225 Acute Tox. 4; H302 Eye Irrit. 2; H319 STOT SE 3; H335 Carc. 2; H351 EUH019
1,2,4,5-Benzenetetracarboxylic Dianhydride	5 - 10	89-32-7	201-898-9	None assigned	Skin Sens. 1; H317 Eye Dam. 1; H318 Resp. Sens. 1; H334
1,2,4,5-Benzenetetracarboxylic Acid	1-3	89-05-4	201-879-5	None assigned	Eye Irrit. 2; H319

H225: Highly flammable liquid and vapour. H302: Harmful if swallowed. H317: May cause an allergic skin reaction. H318: Causes serious eye damage. H319: Causes serious eye irritation. H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335: May cause respiratory irritation. H351: Suspected of causing cancer. EUH019: May form explosive peroxides.

## 4. SECTION 4: FIRST AID MEASURES



### 4.1 Description of first aid measures

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. If experiencing respiratory symptoms: Call a POISON CENTER/doctor/... IF exposed or concerned: Get medical advice/attention.

Skin Contact

IF ON SKIN: Remove contaminated clothing and wash all affected areas with plenty of water. If irritation (redness, rash, blistering) develops, get medical attention. IF exposed or concerned: 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. Get immediate medical advice/attention. Obtain prompt consultation, preferably from an ophthalmologist.

Ingestion

IF SWALLOWED: Rinse mouth. Make victim drink plenty of water. Do not induce vomiting unless instructed to do so by medical personnel. Call a POISON CENTER/doctor if you feel unwell. IF exposed or concerned: Get medical advice/attention.

### 4.2 Most important symptoms and effects, both acute and

Harmful if swallowed. Causes serious eye damage. May cause an allergic skin

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delayed

**4.3 Indication of any immediate medical attention and special treatment needed**

reaction. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of causing cancer. Treat symptomatically. IF IN EYES: Obtain prompt consultation, preferably from an ophthalmologist. Chemical eye burns may require extended irrigation.

## 5. SECTION 5: FIREFIGHTING MEASURES

**5.1 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.

**5.2 Special hazards arising from the substance or mixture**

Highly flammable liquid and vapour. May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide and Explosive Peroxides. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. The vapour is heavier than air; beware of pits and confined spaces.

**5.3 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.

## 6. SECTION 6: ACCIDENTAL RELEASE MEASURES

**6.1 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. Use personal protective equipment as required. See Section: 8. Avoid breathing vapours.

**6.2 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.

**6.3 Methods and material for containment and cleaning up**

Use non-sparking equipment when picking up flammable spill. Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a container for disposal. Ventilate the area and wash spill site after material pick-up is complete. This material and its container must be disposed of as hazardous waste.

**6.4 Reference to other sections**

See Section: 8, 13

## 7. SECTION 7: HANDLING AND STORAGE

**7.1 Precautions for safe handling**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid all contact. 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.

**7.2 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. Vapor space above stored liquid may be flammable/explosive unless blanketed with inert gas.

Storage temperature

Ambient. Keep at temperature not exceeding (°C): 27

Storage life

Stable under normal conditions.

Incompatible materials

Mild steel, Strong oxidising agents and Acids.

**7.3 Specific end use(s)**

Adhesives. See Section: 1.2

## 8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**8.1 Control parameters**

**8.1.1 Occupational Exposure Limits**

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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
Tetrahydrofuran	109-99-9	200	590	250*	735*	NIOSH
Tetrahydrofuran	109-99-9	200	590	-	-	OSHA

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

- 8.1.2 Biological limit value** Not established.
- 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. 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 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.
- 
- 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.
- 
- 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	Almost colourless/ Amber Liquid
Odour	Ether-like Odour
Odour threshold	Not available.
pH	Not established.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	66°C
Flash point	-14 °C [Open cup]
Evaporation rate	>1 (BuAc = 1)
Flammability (solid, gas)	Not applicable - Liquid
Upper/lower flammability or explosive limits	Flammable Limits (Lower) (%v/v): 1.8 Flammable Limits (Upper) (%v/v): 11.8
Vapour pressure	145 (mmHg) @ 15°C
Vapour density	2.5 (Air = 1)
Relative density	0.9 (H2O = 1)

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Solubility(ies)	Soluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.
Explosive properties	EUH019: May form explosive peroxides.
Oxidising properties	Not oxidising.

9.2 Other information VOC: 705 g/L

## 10. SECTION 10: STABILITY AND REACTIVITY

10.1 Stability and reactivity	Stable under normal conditions.
10.2 Chemical stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	Highly flammable liquid and vapour. May form explosive peroxides. Reacts violently with - Strong oxidising agents and Acids. May polymerise on prolonged heating.
10.4 Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from direct sunlight. Keep at a temperature not exceeding (°C): 27.
10.5 Incompatible materials	Mild steel, Strong oxidising agents and Acids.
10.6 Hazardous decomposition product(s)	May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide and Explosive Peroxides.

## 11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects (Substances in preparations / mixtures)	
Acute toxicity	
Ingestion	Acute Tox. 4: Harmful if swallowed. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 567 mg/kg bw/day.
Inhalation	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 >20.0 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	Based upon the available data, the classification criteria are not met.
Serious eye damage/irritation	Eye Dam. 1: Causes serious eye damage.
Respiratory or skin sensitization	Skin Sens. 1: May cause an allergic skin reaction. Resp. Sens. 1: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Germ cell mutagenicity	Based upon the available data, the classification criteria are not met.
Carcinogenicity	Carc. 2: Suspected of causing cancer.
Reproductive toxicity	Based upon the available data, the classification criteria are not met.
STOT - single exposure	STOT SE 3: May cause respiratory irritation.
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.
11.2 Other information	None.

## 12. 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	This product is readily biodegradable in water.
12.3 Bioaccumulative potential	The product has low potential for bioaccumulation.
12.4 Mobility in soil	The product is predicted to have high mobility in soil. (Water Soluble)
12.5 Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
12.6 Other adverse effects	None known.

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## 13. SECTION 13: DISPOSAL CONSIDERATIONS

- 13.1 **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.
- 13.2 **Additional Information** Dispose of contents in accordance with local, state or national legislation.

## 14. SECTION 14: TRANSPORT INFORMATION

- |  | ADR/RID / IMDG / IATA                 |
|--|---------------------------------------|
| 14.1 <b>UN number</b>  | UN 2056                               |
| 14.2 <b>Proper Shipping Name</b>   | TETRAHYDROFURAN                       |
| 14.3 <b>Transport hazard class(es)</b>   | 3                                     |
| 14.4 <b>Packing group</b>  | II                                    |
| 14.5 <b>Environmental hazards</b>  | Not classified as a Marine Pollutant. |
| 14.6 <b>Special precautions for user</b>   | See Section: 2                        |
| 14.7 <b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b> | Not applicable.                       |
| 14.8 <b>Additional Information</b>   | None.                                 |

## 15. SECTION 15: REGULATORY INFORMATION

- 15.1 **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- 15.1.1 **EU regulations**  
SVHCs None  
Germany Water hazard class: 2
- 15.1.2 **National regulations**  
USA NTP: Not listed  
IARC Monographs: Not listed  
OSHA Regulated: Not listed
- 15.2 **Chemical Safety Assessment** Not available.

## 16. SECTION 16: OTHER INFORMATION

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

**References:** Existing Safety Data Sheet (SDS), Harmonised Classification(s) for Tetrahydrofuran (CAS# 109-99-9) and 1,2,4,5-Benzenetetracarboxylic Dianhydride (CAS# 89-32-7), Existing ECHA registration(s) for Tetrahydrofuran (CAS# 109-99-9) and the Classification and Labelling Inventory for 1,2,4,5-Benzenetetracarboxylic Acid (CAS# 89-05-4).

Classification of the substance or mixture According to Regulation (EC) No. 1272/2008 (CLP)	Classification Procedure
Flam. Liq. 2; H225	Flash Point [Closed cup] Test Result/ Boiling Point (°C) Test Result
Acute Tox. 4; H302	Acute Toxicity Estimate (ATE) Calculation.
Skin Sens. 1; H317	Threshold Calculation
Eye Dam. 1; H318	Threshold Calculation
Resp. Sens. 1; H334	Threshold Calculation
STOT SE 3; H335	Threshold Calculation
Carc. 2; H351	Threshold Calculation

### LEGEND

LTEL	Long Term Exposure Limit
STEL	Short Term Exposure Limit
DNEL	Derived No Effect Level

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PNEC	Predicted No Effect Concentration
PBT	PBT: Persistent, Bioaccumulative and Toxic
vPvB	very Persistent and very Bioaccumulative
NTP	National Toxicology Program
IARC	International Agency for Research on Cancer
OSHA	The Occupational Safety & Health Administration
NIOSH	National Institute for Occupational Safety and Health

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

No information available.