



MATERIAL SAFETY DATA SHEET

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: M-Bond A-12 (Part A)

November 18, 2005

Vishay Micro-Measurements
Post Office Box 27777
Raleigh, NC 27611

MSDS # MGM004I

919-365-3800

CHEMTREC 1-800-424-9300 (U.S.)
703-527-3887 (Outside U.S.)

NOTE: CHEMTREC numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

SECTION 2: HAZARDOUS INGREDIENTS / IDENTITY INFORMATION

CAS NUMBER	CHEMICAL IDENTITY	%
25068-38-6	Bisphenol A/Epichlorohydrin Resin	60-90
1317-65-3	Limestone/Calcium Carbonate	10-30
14808-60-7	Quartz(crystalline silica)	5-10
1344-28-1	Alumina/Aluminum Oxide	5-10
51274-00-1	Iron(II) Oxide, Hydrate	1-5

SECTION 3: HEALTH HAZARD DATA

Routes of Entry:

Inhalation: No **Skin:** YES **Eyes:** Yes

Health Hazards (Acute and Chronic): Depending on the route, frequency, and duration of exposure, the following organs and/or systems may be adversely effected: the eyes, skin, and the immune system (allergic reactions).

Carcinogenicity: NTP: See Section 11
IARC Monographs: See Section 11
OSHA Regulated: See Section 11

NOTE: Bisphenol A/Epichlorohydrin Resin has been shown to be mutagenic in some microbial assays, but has failed to produce mutagenic activity in others. Chromosomal aberrations have been observed in cultured rat liver cells.

Signs and Symptoms of Exposure:

INHALATION: Under normal conditions, no adverse effects are expected.

EYE CONTACT: Contact can cause moderate irritation.

SKIN CONTACT: Contact can cause moderate irritation. It can cause the development of hypersensitivity in susceptible individuals.

INGESTION: This product has a low order of oral toxicity. It is not expected to produce any adverse effects following acute exposure.

Conditions Generally Aggravated by Exposure: Some of the components in this product may aggravate existing medical conditions involving the skin or the immune system or specific chemical allergies. Consequently, certain individuals may be more susceptible to the possible effects of overexposure.

SECTION 4: EMERGENCY AND FIRST AID PROCEDURES

INHALATION: If vapor is inhaled, remove to fresh air. Administer oxygen if there is difficulty breathing. Give artificial respiration if breathing has stopped. Obtain medical attention without delay.

EYE CONTACT: In case of eye contact, flush with a steady stream of water for 15 minutes. Obtain prompt medical attention.

SKIN CONTACT: In case of skin contact, wash with soap and plenty of water. Remove contaminated clothing. Launder clothes before reusing. Destroy or thoroughly clean shoes before reusing. Obtain medical attention.

INGESTION: If swallowed, call a poison control center, emergency room, or physician. Unless advised otherwise, induce vomiting by giving either syrup of Ipecac followed by 2 glasses of water or by sticking finger down throat.

NOTE TO PHYSICIAN: No specific antidote is known. Therapy is directed at preventing absorption, administering to the symptoms as they occur, and providing supportive therapy.

SECTION 5: FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): >200°F (>93.3°C) Setaflash Closed Cup

Flammable limits: LEL: N/A UEL: N/A

Extinguishing Media: Use foam, carbon dioxide, dry chemical, water spray or fog.

Special Firefighting Procedures: Firefighters and others who may be exposed to the products of combustion should be equipped with NIOSH approved positive pressure self-contained breathing apparatus and full protective clothing. For small fires, use foam, carbon dioxide, dry chemical, or water spray. For large fires, use foam, water spray, or fog.

Unusual Fire and Explosion Hazards: May liberate irritating vapors during combustion or decomposition.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Steps to be taken if material is released or spilled: Ventilate area, if necessary. Evacuate area if airborne levels could exceed established limits. Contain spill using a dike or barrier. If a substantial quantity is spilled and can be pumped, recover with pumping equipment or a vacuum truck. Otherwise, cover spill with an inert absorbent, such as fuller's earth, clay, or other appropriate absorbent. Place material in a suitable container for further handling and disposal. Observe all federal, state, and local reporting regulations regarding material release or spills.

SECTION 7: EXPOSURE CONTROLS -- PERSONAL PROTECTION

Respiratory Protection: Where exposure exceeds established airborne limits, use a NIOSH approved respirator, a self-contained breathing apparatus, or a supplied air respirator as necessary to control exposure.

Ventilation: Maintain airborne concentrations below the established exposure limits. General ventilation may be acceptable, however, enclosure and local exhaust may be required to control exposure when generating vapors or mist.

Protective Gloves: Wear impervious gloves to prevent skin contact.

Eye Protection: Wear chemical splash goggles or safety glasses with sideshields.

Other Protective Clothing or Equipment: Wear protective clothing as necessary to prevent skin contact.

Work / Hygienic Practices: Wash thoroughly after use. An emergency eyewash station should be readily available.

SECTION 8: HANDLING AND STORAGE

Precautions to be taken in handling and storing: Store in a cool, dry, well ventilated area.

Other Precautions: Avoid contact with eyes, skin, and clothing. Heating can generate vapors. Use appropriate ventilation or approved respirators as necessary.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	Not established
Vapor Pressure (mmHg):	Not applicable
Vapor Density (Air = 1):	Not applicable
Specific Gravity (H₂O = 1):	1.26
Melting Point:	Not known
Evaporation Rate (BuAc = 1):	Not applicable
Volatile Organic Compounds:	None
Solubility in Water:	Insoluble
pH:	Not applicable

Appearance and Odor: Brown viscous liquid; faint epoxy odor.

SECTION 10: STABILITY AND REACTIVITY DATA

Stability: Stable under normal conditions and use.

Conditions to Avoid: Avoid contact with incompatible chemicals.

Incompatibility (Materials to Avoid): Amines, mercaptans, oxidizing agents, acids, strong bases, ammonia.

Hazardous Decomposition or By-products: May release irritating vapors during combustion or decomposition. Decomposition products may include phenolics, smoke, soot, carbon dioxide, carbon monoxide, and metallic oxides.

Hazardous Polymerization: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

This section provides toxicological information with regard to the pure form of the components indicated. This information can be subject to misinterpretation. It is therefore suggested that this information be interpreted by persons trained in its evaluation.

Bisphenol A/Epichlorohydrin Resin:

LD50 Acute Oral Rat: 11,400 mg/kg
LD50 Acute Oral Mouse: 15,600 mg/kg
LD50 Acute Dermal Rabbit: >20,000 mg/kg

Moderately irritating to the eyes and skin. May cause skin sensitization. This resin has been shown to be mutagenic in some microbial assays, but has failed to produce mutagenic activity in others. Chromosomal aberrations have been observed in cultured rat liver cells.

Limestone: Continued long term exposure to calcium carbonate dusts can affect respiratory function. Naturally occurring calcium carbonate can contain, as an impurity, trace amounts of crystalline silica, which has been identified by the IARC as a probable human carcinogen.

Quartz, (Crystalline Silica): Can cause mechanical irritation to the eyes, skin, and gastrointestinal tract. Chronic exposure to crystalline silica dusts can cause silicosis, a fibrotic condition caused by deposition of silicon dioxide particles. Chest pain, and progressive impairment of pulmonary function characterize a silicotic condition. Epidemiological studies indicate lung cancer is more prevalent among individuals affected with silicosis than the general public. A significant incidence of adenocarcinomas and squamous cell carcinomas of the lung was induced in rats exposed to quartz dusts following inhalation and intratracheal administration.

Alumina: Can cause mechanical irritation to the eyes and skin. Treat as a nuisance dust. High concentrations inhaled chronically can lead to the deposition of particulates in the lungs (pneumoconiosis). Alumina may contain, as an impurity, trace amounts of asbestos and crystalline silica.

Iron (II) Oxide, Hydrate: May cause mechanical irritation to the eyes and skin. Prolonged and repeated irritation can lead to the deposition of iron particles in the lungs, (siderosis).

NOTE: Due to this product's physical composition, the release or generation of dust is not expected to occur under normal conditions of use.

SECTION 12: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of in accordance with local, state and federal regulations.

SECTION 13: TRANSPORTATION INFORMATION

SHIPPING NAME	CLASS	UN NUMBER
Not regulated.		

SECTION 14: REGULATORY INFORMATION

SECTION 313 SUPPLIER NOTIFICATION:

This product contains a toxic chemical or chemicals (as listed below) subject to the reporting requirements of Section 313 Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.

CAS NUMBER	CHEMICAL NAME	% BY WEIGHT
1344-28-1	Aluminum Oxide	5-10

TSCA NOTIFICATION:

All components of this product are listed in the Toxic Substance Control Act Chemical Substance Inventory (TSCA).

SECTION 15: OTHER INFORMATION

To the best of our knowledge, the information provided above meets the requirements of the United States Occupational Safety and Health Act and regulations established under 29 CFR 1910.1200 (g)(2)(c)(1)-(4) for a mixture of hazardous chemicals which has not been tested as a whole. The data provided on this Material Safety Data Sheet is from manufacturers of the original components. Vishay Micro-Measurements specifically disclaims any and all form of liability and/or responsibility for the application of this product.