

Section 1 - Product and Company Identification

Hazard Label WARNING label for MDI

Company InformationJohns Manville
Roofing Systems
P.O. Box 5108
Denver, CO 80127 USATelephone: 303-978-2000 8:00AM-5:00PM M-F
Internet Address: <http://www.jm.com>
Emergency: 800-424-9300 (Chemtrec, In English)**Trade Names:** MBR® Bonding Adhesive Activator**Use:** Activator for use with MBR Bonding Adhesive Base
JM MBR Bonding Adhesive is for use in applying roofing plies, modified bitumen membranes, and insulation.**Section 2 - Hazards Identification****Emergency Overview**

Breathing vapors from this product may cause irritation of the upper respiratory tract, fatigue, weakness, drowsiness, and headache. Allergic or asthma-type reactions may occur following sensitization to isocyanates.

Inhalation

Inhalation at levels above the occupational exposure limit could cause respiratory sensitization and risk of serious damage to the respiratory system. The onset of respiratory symptoms may be delayed for several hours after exposure.

Skin

This product is irritating to the skin and may cause sensitization.

Ingestion

This product is not intended to be ingested or eaten under normal conditions of use. If ingested, seek medical attention.

Eyes

This product is irritating to the eyes and may cause sensitization.

Primary Routes of Entry (Exposure)

Inhalation, skin, and eye contact.

Target Organs

Nose (nasal passages), throat, lungs, skin, eyes

Medical Conditions Aggravated by Exposure

Pre-existing respiratory diseases or conditions, especially asthma or chemically-induced asthma. Prior exposure and sensitization to isocyanate, or other chemical sensitizers may cause asthmatic, or allergic reactions.

Section 3 - Composition/Information on Ingredients

CAS #	Component	Percent
9016-87-9	Polymethylene polyphenylene isocyanate (PMDI)	10-100
101-68-8	Methylene bisphenylisocyanate (polymeric MDI)	0-80*

Component Information

*Ingredient of PMDI

General Product Description

Brown liquid with musty odor.

Section 4 - First Aid Measures**First Aid: Inhalation**

If the affected person is having difficulty breathing, administer oxygen or apply artificial respiration and immediately contact a medical professional.

First Aid: Skin

Remove contaminated clothing. Wash exposed areas with soap and water. If irritation develops or persists, seek medical attention. Launder contaminated clothing before reuse.

First Aid: Ingestion

Product is not intended to be ingested or eaten. If this product is ingested, do not induce vomiting and seek medical attention immediately.

First Aid: Eyes

Flush eyes with large amounts of water until irritation subsides. If irritation persists, seek medical attention.

First Aid: Notes to Physician

Treatment for inhalation, skin contact, or ingestion should be symptomatic. Inhalation of high concentrations of this material, as could occur in enclosed spaces or during deliberate abuse, may be associated with cardiac arrhythmias.

Section 5 - Fire Fighting Measures**Flash Point:** >400°F (204°C)**Upper Flammable Limit (UFL):** Not determined**Auto Ignition:** >1100°F (600°C)**Rate of Burning:** Not determined**General Fire Hazards**

MDI vapor and other gases may be generated by thermal decomposition. At temperatures greater than 160°C/320°F, MDI can polymerize and decompose, causing pressure build-up in closed containers. Temperatures over 49°C/120°F accelerate the reaction of MDI with water, which releases carbon dioxide and makes explosive rupture of closed containers possible.

NFPA Ratings:

Health = 3 Fire = 1 Reactivity = 1

Hazardous Combustion Products

Carbon monoxide, carbon dioxide, halogenated hydrocarbons, nitrogen oxides, and various hydrocarbons.

Extinguishing Media

Carbon dioxide (CO₂), water, water fog, dry chemical.

Fire Fighting Equipment/Instructions

Use NIOSH-approved self-contained breathing apparatus operating in the pressure demand mode and full fire fighting protective clothing. Avoid inhalation of vapors.

Section 6 - Accidental Release Measures**Containment Procedures**

MDI in contaminated areas can be neutralized with an ammonia/water solution (80% water, plus 20% non-ionic surfactant, or 90% water, 3-8% ammonia, plus 2% detergent. Use 10 parts neutralizer per one part isocyanate.) Allow containers of neutralized solution to stand, uncovered, for 48 hours to allow carbon dioxide (CO₂) to escape. Small spills should be allowed to stand at least 15 minutes.

Clean-Up Procedures

Place in closable container for disposal.

Section 7 - Handling and Storage**Handling Procedures**

Use protective equipment as described in Section 8 of this safety data sheet when handling uncontained material. Handle in accordance with good industrial hygiene and safety practices.

Storage Procedures

Warehouse storage should be in accordance with package directions, if any. Product should be kept in a cool and dry area in original packaging. Do not freeze.

Section 8 - Exposure Controls / Personal Protection**Exposure Guidelines****A: General Product Information**

Protective equipment should be provided as necessary to prevent inhalation of vapors, prolonged skin contact, and to keep exposure levels below the applicable exposure limits.

B: Component Exposure Limits**Methylene bisphenylisocyanate (polymeric MDI) (101-68-8)**OSHA: 0.02 ppm Ceiling; 0.2 mg/m³ Ceiling

ACGIH: 0.005 ppm TWA

PERSONAL PROTECTIVE EQUIPMENT**Personal Protective Equipment: Eyes/Face**

Safety glasses with side shields or chemical goggles are recommended.

Personal Protective Equipment: Skin

Impervious gloves such as nitrile rubber should be used to help prevent excessive skin contact.

Personal Protective Equipment: Respiratory

A NIOSH approved respirator must be used if vapor concentrations exceed exposure limits.

Ventilation

Local exhaust or general dilution ventilation may be required to maintain exposures below the applicable exposure limits. The need for ventilation systems should be evaluated by a professional industrial hygienist, while the design of specific ventilation systems should be conducted by a professional engineer.

Personal Protective Equipment: General

Protective equipment should be provided as necessary to prevent irritation of the throat, eyes, and skin, and to keep exposures below the applicable exposure limits identified in Section 8.

Section 9 - Physical & Chemical Properties

Appearance: Brown liquid Physical State: oily liquid Vapor Pressure: 1×10^{-5} mm Hg @ 77°F (25°C) Boiling Point: 597°F (decomposes) Solubility (H₂O): Reacts Freezing Point: Not available Evaporation Rate: Not determined VOC: 0 g/L formula calculation	Odor: Musty odor pH: Not applicable Vapor Density: 8.5 Melting Point: 160°F Specific Gravity: 1.24 Solids Content: Not determined Viscosity: Not determined
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Section 10 - Stability & Reactivity Information
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Stability

MDI vapor and other gases may be generated by thermal decomposition. At temperatures greater than 160°C/320°F, MDI can polymerize and decompose, causing pressure build-up in closed containers. Temperatures over 49°C/120°F accelerate the reaction of MDI with water, which releases carbon dioxide. Explosive rupture of closed containers is possible.

Incompatibility

May react with strong oxidizing materials. Avoid contamination with water, acid or strongly alkaline materials, alcohols, metals, soaps and detergents.

Hazardous Decomposition

May form carbon dioxide, carbon monoxide, halogenated hydrocarbons, nitrogen oxides, various hydrocarbons.

Hazardous Polymerization

May occur with strong bases or at temperatures over 320°F (160°C). Temperatures over 99°C (120°F) accelerate the reaction with water.

Section 11 - Toxicological Information

Acute Toxicity**A: General Product Information**

MDI is an allergic sensitizing agent that may produce wheezing, coughing, shortness of breath, runny nose, sore throat, coughing, and reduced lung function. Effects may be delayed. Eye contact may cause irritation with tearing (watery eyes), reddening, and swelling. Ingestion may produce irritation, and corrosive effects on the digestive system.

B: Component Analysis - LD50/LC50**Polymethylene polyphenylene isocyanate (PMDI) (9016-87-9)**

Inhalation LC50 Rat: 490 mg/m³/4H; Oral LD50 Rat: 49 g/kg; Dermal LD50 Rabbit: >9400 mg/kg

Methylene bisphenylisocyanate (polymeric MDI) (101-68-8)

Oral LD50 Rat: 9200 mg/kg

Component Carcinogenicity**Polymethylene polyphenylene isocyanate (PMDI) (9016-87-9)**

IARC: Group 3 - Not Classifiable (IARC Supplement 7 [1987], Monograph 19 [1979])

Methylene bisphenylisocyanate (polymeric MDI) (101-68-8)

IARC: Group 3 - Not Classifiable (IARC Monograph 71 [1999], Supplement 7 [1987], Monograph 19 [1979])

Chronic Toxicity

If the material is heated isocyanates, mainly diisopropylphenyl isocyanate may be released. Repeated or prolonged exposure to isocyanates in general may result in isocyanate sensitization (chemical asthma) in some individuals, causing them to react to isocyanate exposure at concentrations below the established exposure limits. Symptoms include chest tightness, wheezing, coughing, and shortness of breath. Effects can be delayed. Overexposure can cause lung damage, including decreased lung function. Prolonged or repeated skin contact may cause irritation leading to dermatitis. Skin sensitization may also occur.

Teratogenicity

MDI: In laboratory animals, MDI/polymeric and MDI did not produce birth defects; other fetal effects occurred only at high doses which were toxic to the mother.

Section 12 - Ecological Information
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Ecotoxicity**A: General Product Information**

No data available for this product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

Section 13 - Disposal Considerations

US EPA Waste Number & Descriptions**A: General Product Information**

Waste should be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

Section 14 - Transport Information

International Transport Regulations

These products are not classified as dangerous goods according to international transport regulations.

Section 15 - Regulatory Information
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US Federal Regulations**A: General Product Information**

SARA 311 Status. The following SARA 311 designations apply to this product: Immediate (acute) health hazard. Delayed (chronic) health hazard.

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Polymethylene polyphenylene isocyanate (PMDI) (9016-87-9)

SARA 313: 1.0 % de minimis concentration (listed under Chemical Category N120, Diisocyanates)

Methylene bisphenylisocyanate (polymeric MDI) (101-68-8)

SARA 313: 1.0 % de minimis concentration (listed under Chemical Category N120, Diisocyanates)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

State Regulations**A: General Product Information**

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Polymethylene polyphenylene isocyanate (PMDI)	9016-87-9	No	No	No	No	Yes	No
Methylene bisphenylisocyanate (polymeric MDI)	101-68-8	Yes	No	Yes	Yes	Yes	Yes

A: TSCA Status

This product and its components are listed on the TSCA 8(b) inventory.

None of the components listed in this product are listed on the TSCA Export Notification 12(b) list.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Polymethylene polyphenylene isocyanate (PMDI)	9016-87-9	Yes	Yes	No
Methylene bisphenylisocyanate (polymeric MDI)	101-68-8	Yes	Yes	Yes

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Methylene bisphenylisocyanate (polymeric MDI)	101-68-8	0.1 %

WHMIS Classification

Controlled Product Classification: D2A, based on respiratory sensitization properties of MDI. D2B eye or skin irritant. D2B skin sensitizer.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations. This SDS contains all the information required by the Controlled Products Regulations.

Section 16 - Other Information**Other Information**

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The information herein is presented in good faith and believed to be accurate as of the effective date given. However, no warranty, expressed or implied, is given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws.

Date	MSDS #	Reason
12/11/00	3102-2.0000	Sect. 5 and 9: Physical data updated per supplier MSDS. Sect. 2 Composition: deleted triethyl phosphate; added hydrogenated terphenyls
03/08/01	3102-2.0001	Sect. 14: Updated DOT information.
03/18/02	3102-2.0001-A	Sect. 1 Trade Name, added MBR Bonding Adhesive Activator. Sect. 2 Added 9016-87-9.
11/13/02	3102-2.0001-B	Sect. 1 Trade Names: deleted MBR Bonding Cement Activator. Other misc. edits.
08/05/03	3102-2.0002	Re-enter DOT (Sect. 14). Other minor edits.
03/30/05	3102-2.0003	Added UltraGard TPO Pourable Sealer-Part B. Edits in all sections for product changes.
12/20/05	3102-2.0004	Regulatory update. Minor edits in Section 15 WHMIS.
02/21/06	3102-2.0005	UltraGard names changed to JM
08/03/07	3102-2.0006	Regulatory update. Addition of JM TPO-1 Pourable Sealer-Part B to trade names. Minor edits throughout.
07/24/08	3102-2.0007	Removed trade names MBR® Flashing Cement Activator; JM EPDM Pourable Sealer-Part B; JM PVC Pourable Sealer-Part B; JM TPO Pourable Sealer-Part B; JM TPO-1 Pourable Sealer-Part B to their own SDSs. Updated SDS to GHS format.

End of Sheet 3102