

Section 1 - Chemical Product and Company Identification**Product Name** MBR® Flashing Cement Cartridges**CAS#** None Assigned**Generic Name** Cement & Sealant Activator**Formula** Mixture**Chemical Name:** Mixture**Hazard Label** WARNING Flammable**Manufacturer Information**Johns Manville
Roofing Systems Group
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® Flashing Cement Cartridges**Section 2 - Composition / Information on Ingredients**

CAS #	Component	Percent
9016-87-9	Polymethylene polyphenylene isocyanate (Activator)	100
101-68-8	Methylene bis(phenylisocyanate) (MDI) (Activator)	63-76*
8052-42-4	Petroleum Asphalt (Base)	20-80
8052-41-3	Stoddard solvent (Base)	<30
Not Available	Amine compounds, including amine derivatives (Base)	<10
64742-95-6	Petroleum distillate, light aromatic (Base)	<2

Additional Component Information

* Polymethylene polyphenylene isocyanate contains 63-76% MDI

Kit consists of:

6 Base and Activator dual-tube cartridges

7 Static Mixers

7 Restrictors

1 Instruction Sheet

Section 3 - Hazards Identification**Emergency Overview**

APPEARANCE AND ODOR: Base is a thick black liquid that may have kerosene odor. Activator is a brown liquid that may have a musty or slight petroleum odor. Base and activator for this kit are in the form of dual-tube cartridges.

Flammable liquid. Solvents contained in this product evaporate and form vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as cigarettes, pilot lights, welding equipment, electrical motors and switches, and static discharge. Fire hazard is greater as liquid temperature rises.

The activator is an isocyanate which is a respiratory sensitizer. Do not inhale vapors or dust; see Section 8.

Potential Health Effects**Summary**

Prolonged and excessive exposures to solvent fumes can result in nausea and dizziness and central nervous system damage. Asphalt and its fumes can irritate skin, eyes, and upper respiratory tract.

Exposure to vapors from activator may be irritating to the eyes, respiratory passages, and mucous membranes.

Inhalation

Irritation of the upper respiratory tract, nausea, and dizziness may occur. Prolonged breathing of vapor may cause fatigue, drowsiness, unconsciousness and even death.

Activator is harmful if inhaled when sprayed or heated. Activator is a respiratory sensitizer. Severe overexposure to the activator may lead to pulmonary edema. MDI can induce respiratory sensitization with asthma-like symptoms including chronic cough, tightness of chest with difficulty in breathing.

Skin

Contact with base may cause temporary irritation or redness may occur. Contact with hot materials can cause thermal burns.

Contact with activator may cause irritation or an allergic reaction.

Ingestion

Ingestion of this product is unlikely. However, ingestion of product may produce gastrointestinal irritation and disturbances.

An aspiration hazard may exist which could cause chemical pneumonitis which is sometimes fatal.

Eyes

Irritation, redness, and burning in eyes may occur.

Exposure to the activator may cause slight transient corneal injury.

Ears

Temporary irritation (itching) or redness may occur.

Primary Routes of Entry (Exposure)

Inhalation, skin, and eye contact.

Target Organs

Upper respiratory passages, skin, and eyes.

Medical Conditions Aggravated by Exposure

Pre-existing chronic respiratory, skin, or eye diseases or conditions.

Section 4 - First Aid Measures

First Aid: Inhalation

Remove individual to fresh air and administer artificial respiration or oxygen as necessary.

First Aid: Skin

Contact with base: Wash exposed skin with soap and water. If irritation develops or persists, seek medical attention. DO NOT use solvents or thinners to remove materials from skin. Asphalt can be removed with vegetable oil or mineral oil.

Upon contact with activator, wash thoroughly with soap and water.

First Aid: Ingestion

Product is not intended to be ingested or eaten. If this product is ingested, irritation of the gastrointestinal (GI) tract may occur, and should be treated symptomatically. Drink plenty of water and get medical advice. Do not induce vomiting. If medical advice cannot be obtained, take the person and product container to the nearest medical emergency treatment center or hospital.

First Aid: Eyes

Gently flush irritated eye with water for 10-15 minutes or until irritation subsides. Hold eyelid open while flushing. If irritation cannot be relieved through flushing, seek medical attention.

First Aid: Ears

Wash exposed skin with soap and water. If irritation develops in the inner ear, seek medical attention.

First Aid: Notes to Physician

Base is an irritant and is not expected to produce any chronic health effects. Treatment should be directed toward removing the source of irritation with symptomatic treatment as necessary.

Activator may cause skin or pulmonary sensitization reactions. Treatment should be directive toward removing individual from further exposure.

Section 5 - Fire Fighting Measures

Flash Point: Base: 38°C/101°F Activator: >204°C/400°F
Upper Flammable Limit (UFL): Base: 6.0%
Auto Ignition: Base: >260°C/500°F Activator: >600°C/1100°F
Rate of Burning: Not determined

Method Used: COC
Lower Flammable Limit (LFL): Base: 1.0%
Flammability Classification: Not determined

General Fire Hazards

Base: Avoid direct contact with flame. Flammable liquid. Vapor may cause flash fire. Use water spray to cool materials in or near a fire. Fire may be difficult to extinguish. Vapors may travel, and can be ignited by a remote source.

Activator: Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may rupture them.

Base NFPA Ratings: Health = 1 Fire = 2 Reactivity = 0
Activator NFPA Ratings: Health = 3 Fire = 1 Reactivity = 1

Hazardous Combustion Products

Toxic fumes are released from activator during fires.

Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self contained breathing apparatus.

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

Dam, mop, absorb onto sawdust or other absorbent, and place in suitable container. Do not allow liquid to contaminate sewers, or other water sources. Allow to cool and solidify for reuse or disposal. DO NOT SEAL.

Clean-Up Procedures

Comply with state and local regulations for disposal of these products. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

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

Use protective equipment as described in Section 8 of this material safety data sheet when handling uncontained material.

Storage Procedures

Eliminate all sources of ignition. Solvents contained in this product evaporate and form vapor (fumes) which catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources, such as cigarettes, pilot lights, welding equipment, electrical motors and switches and static discharge. Fire hazard is greater as liquid temperature rises.

Store indoors at 70°-95°F in original, unopened containers. Protect from moisture. Do not freeze.

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

Protective equipment should be provided as necessary to prevent irritation of the eyes, skin, and respiratory tract, and to keep exposure levels below the applicable exposure limits.

B: Component Exposure Limits**Methylene bis(phenylisocyanate) (MDI) (Activator) (101-68-8)**

ACGIH: 0.005 ppm TWA
OSHA: 0.02 ppm Ceiling; 0.2 mg/m³ Ceiling

Petroleum Asphalt (Base) (8052-42-4)

ACGIH: 0.5 mg/m³ TWA (fume, inhalable fraction, as benzene soluble aerosol)

Stoddard solvent (Base) (8052-41-3)

ACGIH: 100 ppm TWA
OSHA: 100 ppm TWA; 525 mg/m³ TWA

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

Safety glasses with sideshields or safety goggles are recommended. If a respirator is required, use full face mask to protect eyes from vapor or mist.

Personal Protective Equipment: Ears

Ear protection (earplugs, hood, or earmuffs), if necessary.

Personal Protective Equipment: Skin

Wear protective clothing and impervious gloves. Launder clothes before re-use.

Personal Protective Equipment: Respiratory

Use in well ventilated areas. Respiratory protection is not required if mechanical or dilution ventilation is sufficient to keep the exposure levels below the applicable 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

Use proper equipment when using product in confined or enclosed areas.

Section 9 - Physical & Chemical Properties

Appearance:	Base is a thick black liquid. Activator is a brown liquid.	Odor:	Kerosene or musty odor
Physical State:	liquid	pH:	Not determined
Vapor Pressure:	Base: 3 mm Hg (20°C/68°F) Activator: <0.00001 mm Hg @ 25°C/77°F	Vapor Density:	Base: 4.9 (Approximately) Activator: 8.5 (Approximately)
Boiling Point:	Base: >155°C/>310°F Activator: 597°F (decomposes)	Melting Point:	Not determined
Solubility (H₂O):	Base: Minimal Activator: Miscible in all proportions with many hydrocarbon solvents; reacts with water.	Specific Gravity:	Base: 0.9 (20°C/68°F) Activator: 1.24
Freezing Point:	0°C/32°F	Solids Content	89% mixed
Evaporation Rate:	Not Applicable	Viscosity:	Not Applicable
Percent Volatile:	Base: <15% Activator: NA	VOC:	Base <121 g/L; Activator 0 g/L; <112g/L mixed

Section 10 - Chemical Stability & Reactivity Information**Chemical Stability**

This is a stable material when properly stored.

Incompatibility

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

Hazardous Decomposition

Base: Incomplete combustion can produce carbon monoxide. Normal combustion forms carbon dioxide and water vapor and may produce oxides of nitrogen.

Activator: Incomplete combustions can produce isocyanate vapors and mist, and carbon monoxide. Normal combustion may produce oxides of nitrogen.

Hazardous Polymerization

Base: Will not occur.

Activator: May occur with strong bases or at temperatures over 160°C/320°F. Temperatures over 99°C/12 0°F accelerate the reaction with water.

Section 11 - Toxicological Information**Acute Toxicity****A: General Product Information**

Skin or eye contact can cause irritation and redness. Inhalation can cause temporary irritation of the eyes and upper respiratory tract. If the material is hot, thermal burns can occur. Nausea and dizziness can occur upon inhalation of the vapors or fumes.

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

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

Methylene bis(phenylisocyanate) (MDI) (Activator) (101-68-8)

Oral LD50 Rat: 9200 mg/kg

Petroleum Asphalt (Base) (8052-42-4)

Oral LD50 Rat: >5000 mg/kg; Dermal LD50 Rabbit: >2000 mg/kg

Petroleum distillate, light aromatic (Base) (64742-95-6)

Inhalation LC50 Rat: >5.2 mg/L/4H; Inhalation LC50 Rat: 3400 ppm/4H; Oral LD50 Rat: 8400 mg/kg; Dermal LD50 Rabbit: >2000 mg/kg

Carcinogenicity**A: General Product Information**

No association has been established between occupational exposure to petroleum asphalt and cancer in humans. For more information, see section below on Chronic Toxicity.

B: Component Carcinogenicity**Polymethylene polyphenylene isocyanate (Activator) (9016-87-9)**

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

Methylene bis(phenylisocyanate) (MDI) (Activator) (101-68-8)

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

Petroleum Asphalt (Base) (8052-42-4)

ACGIH: A4 - Not Classifiable as a Human Carcinogen (as benzene soluble aerosol)

IARC: Group 3 - Not Classifiable (IARC Supplement 7 [1987], Monograph 35 [1985])

Chronic Toxicity

Asphalt fumes arise from hot asphalt. When this "cold application" product is used as directed, it is not likely to create hazardous levels of asphalt fumes.

Asphalt (asphalt CAS # 8052-42-4 and oxidized asphalt 64742-93-4; bitumens): In 1985/87, IARC (International Agency for Research on Cancer) concluded the following: (a) Bitumens are not classifiable as to their carcinogenicity to humans (Group 3). (b) Extracts of steam- and air-refined bitumens are possibly carcinogenic to humans (Group 2B). IARC found that evidence for carcinogenicity from animal studies was: inadequate for undiluted air-refined bitumens; limited for steam-refined and cracking-residue bitumens; sufficient for extracts of steam-refined and air-refined bitumen. IARC found that human evidence for carcinogenicity of asphalt fumes was inadequate. Studies of roofers indicated an excess of cancers; however, IARC concluded that, since roofers may be exposed also to coal-tar pitches and other materials, "the excess cancer risk cannot be attributed specifically to bitumens." In 1994, a published review of 20 epidemiology studies of asphalt workers and roofers agreed with IARC, that current human evidence is inadequate for the carcinogenicity of asphalt fumes in humans. Trace amounts of polynuclear aromatic hydrocarbons (PAHs) may be present in some asphalts and can be released upon excessive heating, which results in thermal cracking of the asphalt compounds. Some of these PAHs have been identified as having the potential to induce carcinogenic and reproductive health effects.

Solvents: Moderate irritation of skin, eyes, and upper respiratory tract on prolonged, repeated contact. Dermatitis and defatting of the skin. Pre-existing eye skin, and pulmonary disorders may be aggravated by exposure to this product. Reports have associated permanent brain and nervous system damage with prolonged (>12-14 yr.) occupational overexposure to high levels of solvents.

Chronic overexposure to activator may result in permanent decrease in lung function.

Mutagenicity

Mutagenicity data on MDI are inconclusive. MDI was weakly positive in some cases in vitro (test tube) studies; other in vitro studies were negative. A mutagenicity study in animals was negative.

Section 12 - Ecological Information

Ecotoxicity

A: General Product Information

Base may be toxic to aquatic organisms and should be kept out of sewage and drainage systems and all bodies of water.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Petroleum distillate, light aromatic (Base) (64742-95-6)

96 Hr LC50 *Oncorhynchus mykiss*: 9.22 mg/L

48 Hr EC50 *Daphnia magna*: 6.14 mg/L

Section 13 - Disposal Considerations

US EPA Waste Number & Descriptions

A: General Product Information

Comply with state and local regulations for disposal. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the EPA.

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 - Transportation Information

International Transportation Regulations

DOT: Roofing Cement, NEC

NMFC 170060 Class 55

(Warning - Reacts with water and heat sources)

IATA: UN 1133, Adhesives, 3, PGIII

Flammable liquid label required

Package must not exceed 60 L (15.8 gal)

IMDG: UN 1133, Adhesives, 3, PGIII

Flammable liquid label required

Section 15 - Regulatory Information

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. Fire 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 (Activator) (9016-87-9)

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

Methylene bis(phenylisocyanate) (MDI) (Activator) (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

Asphalt fumes may contain trace amounts of the following California Proposition 65 Listed Substances as known to the state of California to cause cancer or reproductive effects: Poly nuclear aromatic hydrocarbons (benz(a)anthracene, benzo(b)fluoranthene, benzo(j)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene).

South Coast AQMD (California): This material meets the VOC content limits found in South Coast AQMD Rule 1168.

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
Methylene bis(phenylisocyanate) (MDI) (Activator)	101-68-8	Yes	No	Yes	Yes	Yes	Yes
Petroleum Asphalt (Base)	8052-42-4	Yes	No	Yes	Yes	Yes	Yes
Stoddard solvent (Base)	8052-41-3	Yes	No	Yes	Yes	Yes	Yes

Other Regulatory Information**A: General Product Information**

No information available for the product.

B: 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.

C: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Polymethylene polyphenylene isocyanate (Activator)	9016-87-9	Yes	Yes	No
Methylene bis(phenylisocyanate) (MDI) (Activator)	101-68-8	Yes	Yes	Yes
Petroleum Asphalt (Base)	8052-42-4	Yes	Yes	Yes
Stoddard solvent (Base)	8052-41-3	Yes	Yes	Yes
Petroleum distillate, light aromatic (Base)	64742-95-6	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 bis(phenylisocyanate) (MDI) (Activator)	101-68-8	0.1 %
Stoddard solvent (Base)	8052-41-3	1 %

WHMIS Classification

Activator: D2A respiratory tract sensitizer; D2B eye or skin irritant; D2B skin sensitizer

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
09/26/06/06	3304-1.0000	New MSDS authoring system.

This is the end of MSDS # 3304