

Section 1 - Product and Company Identification

Hazard Label CAUTION

Company Information

Johns Manville
Roofing Systems
P.O. Box 5108
Denver, CO 80127 USA

Telephone: 303-978-2000 8:00AM-5:00PM M-F
Internet Address: <http://www.jm.com>
Emergency: 800-424-9300 (Chemtrec, In English)

Trade Names: JM PVC Polyurethane Caulk (white, gray, or black)

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.

HMIS Rating: Health = 2, Fire = 2, Reactivity = 0

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

Skin, eye, lungs, central nervous system (CNS), respiratory system, kidney, liver.

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
13463-67-7	Titanium dioxide	20-30
1317-65-3	Calcium carbonate	20-30
1330-20-7	Xylenes	5-10
100-41-4	Ethyl benzene	1-5
101-68-8	Methylene bis(phenylisocyanate) (MDI)	<1
1333-86-4	Carbon black	<0.5*

Component Information

*Component of black caulk

General Product Description

Thick black, gray, or white paste with a solvent odor.

Section 4 - First Aid Measures

First Aid: Inhalation

Remove to fresh air. If symptoms persist contact a physician.

First Aid: Skin

Remove contaminated clothing. Wash affected areas with soap and warm water. Use safety shower for severe exposures. Get medical attention if irritation or sensitization develops or persists. Launder contaminated clothing before reuse.

First Aid: Ingestion

Seek medical attention. Do not induce vomiting.

First Aid: Eyes

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

Section 5 - Fire Fighting Measures

Flash Point: 48°C/119°F

Upper Flammable Limit (UFL): 6.95

Auto Ignition: 513°C/955°F

Rate of Burning: Not determined

General Fire Hazards

CAUTION: Combustible liquid and vapor.

Keep away from heat, sparks, and flame. Material is highly volatile and readily gives off vapors which are heavier than air and may travel along the ground or be moved by ventilation and ignited by pilot lights, other flames, sparks heaters, smoking, electric motors, static discharge, or other ignition sources at locations distant from material handling point. Keep container closed. Use with adequate ventilation.

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.

NFPA Ratings: Health = 2, Fire = 2, Reactivity = 0

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

Remove all sources of ignition. Evacuate and ventilate spill area. Dam spill area with sand, earth, or other suitable absorbent. Prevent entry of material into sewers, other water sources, or land areas. Wear full protective clothing and respiratory protection during clean-up as required to maintain exposures below the applicable exposure limit. Shovel absorbed material into containers in well-ventilated area. Large spill: Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Clean-Up Procedures

No additional information available.

Evacuation Procedures

Keep unnecessary personnel away. Keep upwind of the spilled material and isolate exposure.

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

Store in a cool, dry area, out of direct sunlight. Store away from all sources of ignition. Use only in well ventilated areas. Use protective equipment as described in Section 8 of this material safety data sheet when handling uncontained material.

Storage Procedures

No additional information available.

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, nose and throat.

B: Component Exposure Limits**Calcium carbonate (1317-65-3)**

OSHA: 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)

Titanium dioxide (13463-67-7)

OSHA: 15 mg/m³ TWA (total dust)

ACGIH: 10 mg/m³ TWA

Xylenes (1330-20-7)

OSHA: 100 ppm TWA; 435 mg/m3 TWA
ACGIH: 100 ppm TWA
150 ppm STEL

Ethyl benzene (100-41-4)

OSHA: 100 ppm TWA; 435 mg/m3 TWA
ACGIH: 100 ppm TWA
125 ppm STEL

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

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

Carbon black (1333-86-4)

OSHA: 3.5 mg/m3 TWA
ACGIH: 3.5 mg/m3 TWA

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

Safety glasses or goggles with side shields are recommended.
Do not wear contact lenses when working with this material.

Personal Protective Equipment: Skin

Solvent-resistant gloves are recommended. Wear long sleeves, long trousers, and industrial shoes to protect skin from contact with product.

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. A respirator should be used if ventilation is inadequate or unavailable. Use a NIOSH-approved organic vapor respirator to protect against inhalation of vapors.

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

Loose-fitting, long-sleeved clothing should be worn to protect the skin from irritation. Exposed skin areas should be washed with soap and warm water after handling. Thoroughly clean/laundry contaminated shoes and clothing before reuse.

Section 9 - Physical & Chemical Properties

Appearance:	Thick black, gray, or white paste	Odor:	Solvent odor
Physical State:	thick paste	pH:	Not applicable
Vapor Pressure:	10	Vapor Density:	3.68
Boiling Point:	136-141°C/277-286°F	Melting Point:	Not determined
Solubility (H₂O):	Insoluble	Specific Gravity:	1.35
Freezing Point:	Not determined	Evaporation Rate:	Not applicable
Viscosity:	Non-flowing paste	Percent Volatile:	9.3%
VOC:	125 g/L		

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

This product reacts with water, acids, bases (alkalis, ammonia), alcohols, metal compounds, and surface active materials.

Stability: Conditions to Avoid

Store away from alcohols, amines, or other materials that react with diisocyanates. Avoid prolonged heating above 160°C/320°F or storage below 5°C/41°F. Temperatures above 49°C/102°F will accelerate reaction with water.

Incompatibility

Alkalis, acids, alcohols, detergents, water.

Hazardous Decomposition

Decomposition products include: carbon dioxide, carbon monoxide, nitrogen oxide, hydrogen chloride, aldehydes, water vapor, and traces of hydrogen cyanide.

Hazardous Polymerization

Will occur with moisture and other isocyanate reactants.

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**Titanium dioxide (13463-67-7)**

Oral LD50 Rat: >10000 mg/kg

Xylenes (1330-20-7)

Inhalation LC50 Rat: 5000 ppm/4H; Inhalation LC50 Rat:47635 mg/L/4H; Oral LD50 Rat:4300 mg/kg; Dermal LD50 Rabbit:>1700 mg/kg

Ethyl benzene (100-41-4)

Inhalation LC50 Rat: 17.2 mg/L/4H; Oral LD50 Rat:3500 mg/kg; Dermal LD50 Rabbit:15354 mg/kg

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

Oral LD50 Rat: 9200 mg/kg

Carbon black (1333-86-4)

Oral LD50 Rat: >15400 mg/kg; Dermal LD50 Rabbit:>3 g/kg

Carcinogenicity**A: General Product Information**

No data for this product as a whole.

B: Component Carcinogenicity**Titanium dioxide (13463-67-7)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Group 2B - Possibly Carcinogenic to Humans (IARC Monograph 93 [in preparation], Monograph 47 [1989])

Xylenes (1330-20-7)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Group 3 - Not Classifiable (IARC Monograph 71 [1999], Monograph 47 [1989])

Ethyl benzene (100-41-4)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

IARC: Group 2B - Possibly Carcinogenic to Humans (IARC Monograph 77 [2000])

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

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

Carbon black (1333-86-4)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Group 2B - Possibly Carcinogenic to Humans (IARC Monograph 93 [in preparation], Monograph 65 [1996])

Chronic Toxicity

Isocyanates: Repeated or prolonged exposure to MDI 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.

Lung injury has been observed in laboratory animals after repeated excessive exposure to MDI/polymeric MDI aerosol droplets. Lung tumors have been observed in laboratory animals exposed to aerosol droplets of MDI/polymeric MDI (6 mg/m) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects.

Solvents: Prolonged, excessive exposure to solvents (e.g., toluene, acetone, and xylene) may cause nervous system, kidney, and liver damage. Repeated, prolonged skin contact will defat the skin, causing drying, cracking, and dermatitis.

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

No data available for this product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity**Xylenes (1330-20-7)**

96 Hr LC50 Pimephales promelas: 13.4 mg/L [flow-through]; 96 Hr LC50 Oncorhynchus mykiss: 2.661-4.093 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 13.5-17.3 mg/L; 96 Hr LC50 Lepomis macrochirus: 13.1-16.5 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 19 mg/L; 96 Hr LC50 Lepomis macrochirus: 7.711-9.591 mg/L [static]; 96 Hr LC50 Pimephales promelas: 23.53-29.97 mg/L [static]; 96 Hr LC50 Cyprinus carpio: 780 mg/L [semi-static]; 96 Hr LC50 Cyprinus carpio: >780 mg/L; 96 Hr LC50 Poecilia reticulata: 30.26-40.75 mg/L [static]
48 Hr EC50 water flea: 3.82 mg/L; 48 Hr LC50 Gammarus lacustris: 0.6 mg/L

Ethyl benzene (100-41-4)

96 Hr LC50 Oncorhynchus mykiss: 11.0-18.0 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 4.2 mg/L [semi-static]; 96 Hr LC50 Pimephales promelas: 7.55-11 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 32 mg/L [static]; 96 Hr LC50 Pimephales promelas: 9.1-15.6 mg/L [static]; 96 Hr LC50 Poecilia reticulata: 9.6 mg/L [static]
72 Hr EC50 Selenastrum capricornutum: 4.6 mg/L; 96 Hr EC50 Selenastrum capricornutum: >438 mg/L
48 Hr EC50 Daphnia magna: 1.8-2.4 mg/L

Carbon black (1333-86-4)

24 Hr EC50 Daphnia magna: >5600 mg/L

Section 13 - Disposal Considerations**US EPA Waste Number & Descriptions****A: General Product Information**

Product waste is classified as hazardous under Resource Conservation and Recovery Act (RCRA) regulations at 40 CFR 261. Dispose of material in accordance with federal, state, and local regulations in a hazardous waste facility. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

B: Component Waste Numbers**Xylenes (1330-20-7)**

RCRA: waste number U239 (Ignitable waste, Toxic waste)

Disposal Instructions

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

Section 14 - Transport Information**International Transport Regulations**

DOT: Not regulated

IATA: ID 8000, Consumer Commodity, 9

Inner packagings must not exceed 500 mL each and the outer package may not exceed 30 kg (66 lb) gross weight.

IMDG: UN1133, Adhesives, 3, PG III

Inner packagings must not exceed 5 L (1.3 gal) and outer packaging must not exceed 30 kg (66 lb).

Section 15 - Regulatory Information

US Federal Regulations

A: General Product Information

No additional information available.

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).

Xylenes (1330-20-7)

SARA 313: 1.0 % de minimis concentration
CERCLA: 100 lb final RQ; 45.4 kg final RQ

Ethyl benzene (100-41-4)

SARA 313: 0.1 % de minimis concentration
CERCLA: 1000 lb final RQ; 454 kg final RQ

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

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
Calcium carbonate	1317-65-3	No	No	Yes	Yes	Yes	Yes
Titanium dioxide	13463-67-7	No	No	Yes	Yes	Yes	Yes
Xylenes	1330-20-7	Yes	No	Yes	Yes	Yes	Yes
Ethyl benzene	100-41-4	Yes	No	Yes	Yes	Yes	Yes
Methylene bis(phenylisocyanate) (MDI)	101-68-8	Yes	No	Yes	Yes	Yes	Yes
Carbon black	1333-86-4	Yes	No	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause cancer.

Component	CAS #
Ethyl benzene	100-41-4
Carbon black	1333-86-4

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
Calcium carbonate	1317-65-3	Yes	No	Yes
Titanium dioxide	13463-67-7	Yes	Yes	Yes
Xylenes	1330-20-7	Yes	Yes	Yes
Ethyl benzene	100-41-4	Yes	Yes	Yes
Methylene bis(phenylisocyanate) (MDI)	101-68-8	Yes	Yes	Yes
Carbon black	1333-86-4	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
Ethyl benzene	100-41-4	0.1 %
Methylene bis(phenylisocyanate) (MDI)	101-68-8	0.1 %

WHMIS Classification

Controlled Product Classification: D2A

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
03/13/01	3208-1.0100	Sect. 14 update.
05/01/01	3208-1.0101	Update DOT information, Sect. 14
10/16/02	3208-1.0102	Update Transportation Section
		Sect. 3 revision. Sect. 11, added ACGIH designation of ethyl benzene as Animal Carcinogen. Sect. 15: deleted CERCLA requirement for methylene bisphenol isocyanate.
03/18/03	3208-1.0103	Sect. 3 & 5, added HMIS & NFPA. Sect. 9, added VOC g/L.
04/01/05	3208-1.0104	MSDS edited for new TPO caulk composition & regulatory update.
02/22/06	3208-1.0105	TPO Polyurethane Caulk moved to MSDS 3232. MSDS edited for PVC Polyurethane Caulk.
04/29/10	3208-1.0106	Updated SDS to GHS format.

End of Sheet 3208