

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid

WARNING! MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. MAY CAUSE ALLERGIC SKIN OR RESPIRATORY REACTION.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion, This product is an inert plastic when fully cured, and as such, is nonhazardous. Exposure to unreacted chemicals can occur when handling the individual components in pails or when using cartridges from the time of dispensing until the mixed material has cured. The mixed material is actually curing as it is dispensed in an increasingly viscous form, making it unlikely to present an inhalation hazard. The semi-viscous mixture does not flow like a liquid when dispensed, thus minimizing the possibility of accidental skin contact.

Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact

Can cause skin irritation. Symptoms may include redness and burning of skin, and other skin damage. Skin contact with adhesive that is not fully cured may cause an allergic skin reaction or other skin irritation.

Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful.

Inhalation

This product contains 4,4'-diphenylmethane diisocyanate (MDI). Breathing MDI may cause an allergic respiratory reaction with difficult breathing and chest pain. The onset of respiratory symptoms may be delayed for several hours after exposure. Previously sensitized individuals should avoid exposure to all diisocyanates because exposure to even very small amounts can cause asthma-like attacks in these individuals. Repeated and prolonged exposure to large amounts of talc dust may cause mild lung inflammation. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).



Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: Skin, Upper respiratory tract, lung (for example, asthma-like conditions)

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), runny nose, Cough, sneezing, bronchitis, Headache, chest pain, Difficulty in breathing, pneumonia, lung edema (fluid buildup in the lung tissue), Exposure to this product (or a component) may cause an allergic reaction (narrowing of the air passages of the lungs resulting in difficult breathing, tightness in the chest, coughing and wheezing) in some sensitive individuals. Other symptoms of an allergic reaction may include itchy and watery eyes, runny and stuffy nose, sweating, flushing, hives, rapid heart rate, and lowered blood pressure.

Target Organs

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: nasal damage, lung damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: effects on lung function

Carcinogenicity

Carbon black has been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. It is listed as a carcinogen by The International Agency for Research on Cancer (IARC). Epidemiological studies of the incidence of cancer, cardiovascular or respiratory disease in workers in the carbon black producing industry have shown no significant health effects due to occupational exposure to carbon black. In a two-year inhalation study in rats, exposure to polymeric methylene bisphenylisocyanate (MDI) aerosol caused a significant increase in benign (noncarcinogenic) lung tumors, along with a single carcinogenic lung tumor, at the highest dose only (6 mg/m³). The tumors occurred along with irritation of the respiratory tract and the accumulation of a yellow material in the lungs. There was irritation only at 1.0 mg/m³ and no effect at 0.2 mg/m³. MDI is not listed as carcinogenic by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the Occupational Safety and Health Administration (OSHA).

Reproductive hazard

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

3. COMPOSITION/INFORMATION ON INGREDIENTS



PART A

Hazardous Components	CAS-No.	Concentration
4,4'-DIPHENYLMETHANE DIISOCYANATE	101-68-8	>=30-<40%
TALC	14807-96-6	>=10-<15%
SCAVENGER	254504001-5709	>=10-<15%
HYDROPHOBIC FUMED SILICA	254504001-5596	>=1.5-<5%

PART B

Hazardous Components	CAS-No.	Concentration
TALC	14807-96-6	>=20-<30%
CLAY	254504001-5594	>=1.5-<5%
AMORPHOUS SILICA	254504001-5608	>=1.5-<5%
CARBON BLACK	1333-86-4	>=0.1-<0.5%

4. FIRST AID MEASURES

Eyes

In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse. Do not peel solidified product off the skin. Wash off with soap and plenty of water.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.



Notes to physician

Hazards: Pulmonary edema may be delayed.

Treatment: No information available.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Carbon dioxide (CO₂), Water spray

Hazardous combustion products

carbon dioxide and carbon monoxide, Hydrogen cyanide (hydrocyanic acid), Isocyanates, nitrogen oxides (NO_x), toxic fumes, Aldehydes, Ketones, halogenated hydrocarbons

Precautions for fire-fighting

During a fire, irritating or toxic decomposition products may be generated. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions

Do not let product enter drains. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

Methods for cleaning up

Use rags or other absorbent material to soak up any unmixed prepolymer or curative that has spilled. Use an aqueous solution of ammonia or other suitable isocyanate neutralizing solution to clean up any unreacted prepolymer residue. Do not use neutralizing solution on a large spill, as heat may be generated when using a neutralizing solution to clean up an isocyanate spill. The presence of residual



isocyanate contamination may be checked using a Swype test kit. Use a suitable solvent, such as isopropanol, methyl ethyl ketone or acetone, to clean up residual curative. Use rags or other absorbent material to soak up spilled mixed adhesive that has not cured. Use a suitable solvent, such as isopropanol, methyl ethyl ketone or acetone, to clean up residual adhesive. Use a heat gun and a scrapper to removed cured adhesive. Prior to using a heat gun, ensure that the surface can withstand the heat generated by the gun. Follow all manufacturer's instructions for safe operation of the heat gun. Keep in suitable, closed containers for disposal.

Other information

Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage

Store in a cool, dry, ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

PART A

<u>4,4'-DIPHENYLMETHANE DIISOCYANATE</u>	101-68-8
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ACGIH	time weighted average	0.005 ppm
NIOSH	Recommended exposure limit (REL):	0.005 ppm
NIOSH	Recommended exposure limit (REL):	0.05 mg/m ³
NIOSH	Ceiling Limit Value and Time Period (if specified):	0.020 ppm
NIOSH	Ceiling Limit Value and Time Period (if specified):	0.2 mg/m ³
OSHA Z1	Ceiling Limit Value:	0.02 ppm
OSHA Z1	Ceiling Limit Value:	0.2 mg/m ³

TALC **14807-96-6**

ACGIH	time weighted average	2 mg/m ³	Respirable fraction.
NIOSH	Recommended exposure limit (REL):	2 mg/m ³	Respirable.
Z3	time weighted average	0.1 mg/m ³	Respirable.
Z3	time weighted average	0.3 mg/m ³	Total dust.

SCAVENGER **254504001-5709**

ACGIH	time weighted average	1 mg/m ³	Respirable fraction.
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PART B

TALC **14807-96-6**

ACGIH	time weighted average	2 mg/m ³	Respirable fraction.
NIOSH	Recommended exposure limit (REL):	2 mg/m ³	Respirable.
Z3	time weighted average	0.1 mg/m ³	Respirable.
Z3	time weighted average	0.3 mg/m ³	Total dust.

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.



Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

Skin and body protection

Wear resistant gloves (consult your safety equipment supplier). Discard gloves that show tears, pinholes, or signs of wear.

Respiratory protection

Diisocyanates have poor warning properties. An air-purifying respirator with an organic vapor cartridge and an N95 prefilter can be used safely and effectively to reduce exposure, provided that appropriate cartridge change schedules are developed to ensure that cartridges are changed before breakthrough occurs. The employer is required to select the appropriate respirator for each situation and must consider potential exposure to chemicals in addition to diisocyanates.

9. PHYSICAL AND CHEMICAL PROPERTIES

	PART A	PART B
Physical state	liquid	liquid
Form	viscous	No data
Colour	beige	black
Odour	No data	No data
Boiling point/boiling range	(>)392 °F / 200 °C	no data available
Melting point/range	no data available	no data available
pH	No data	No data
Flash point	> 212 °F / > 100 °C	> 200.1 °F / > 93.4 °C
Evaporation rate	< 1 (n-Butyl Acetate)	No data
Lower explosion limit/Upper explosion limit	No data	No data
Vapour pressure	(<)0.013 hPa @ 77 °F / 25 °C	3.000 hPa @ 77 °F / 25 °C Calculated Vapor Pressure
Vapour density	(>) 1 AIR=1	No data
Density	1.288 g/cm ³ @ 68 °F / 20 °C 10.720 lb/gal @ 77 °F / 25 °C	(ca.) 1.26 g/cm ³ @ 68 °F / 20 °C 10.49 lb/gal @ 77 °F / 25 °C
Solubility(ies)	practically insoluble in water	No data
Partition coefficient: n-octanol/water	No data	No data
log Pow	No data	No data
Auto-ignition temperature	No data	No data

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

Exposure to moisture, freezing temperatures, heat

Incompatible products

Acids, Alcohols, aluminum, Amines, Ammonia, Bases, Copper alloys, fluorides, Iron, isocyanates, oxidizers, Phosphorus compounds, strong alkalis, water, Zinc

Hazardous decomposition products

carbon dioxide and carbon monoxide, Hydrogen cyanide (hydrocyanic acid), Isocyanates, nitrogen oxides (NO_x), Aldehydes, ketones, Organic acids, halogenated hydrocarbons

Hazardous reactions

Product will not undergo hazardous polymerization.

Thermal decomposition

No data

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

TALC	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	LD 50 Rat: 9,200 mg/kg
SCAVENGER	no data available
CLAY	no data available
HYDROPHOBIC FUMED SILICA	LD 50 Rat: > 5,000 mg/kg
AMORPHOUS SILICA	LD 50 Rat: > 5,000 mg/kg
CARBON BLACK	LD 50 Rat: > 10,000 mg/kg

Acute inhalation toxicity

TALC	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	LC 50 Rat: 0.369 mg/l , 4 h
SCAVENGER	no data available
CLAY	no data available
HYDROPHOBIC FUMED SILICA	no data available
AMORPHOUS SILICA	no data available
CARBON BLACK	no data available



Acute dermal toxicity

TALC	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	LD 50 Rabbit: > 7,900 mg/kg
SCAVENGER	no data available
CLAY	no data available
HYDROPHOBIC FUMED SILICA	no data available
AMORPHOUS SILICA	no data available
CARBON BLACK	LD 50 Rabbit: > 3 g/kg

12. ECOLOGICAL INFORMATION

Biodegradability

TALC	: no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	: no data available
SCAVENGER	: no data available
CLAY	: no data available
HYDROPHOBIC FUMED SILICA	: no data available
AMORPHOUS SILICA	: no data available
CARBON BLACK	: no data available

Bioaccumulation

TALC	: no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	: no data available
SCAVENGER	: no data available
CLAY	: no data available
HYDROPHOBIC FUMED SILICA	: no data available
AMORPHOUS SILICA	: no data available
CARBON BLACK	: no data available

Ecotoxicity effects

Toxicity to fish

TALC	: no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	: no data available
SCAVENGER	: no data available
CLAY	: no data available
HYDROPHOBIC FUMED SILICA	: 96 h LC 50 Danio rerio (zebra fish): > 10,000.00 mg/l
AMORPHOUS SILICA	: no data available
CARBON BLACK	: no data available

Toxicity to daphnia and other aquatic invertebrates

TALC	: no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	: no data available

SCAVENGER	:	no data available
CLAY	:	no data available
HYDROPHOBIC FUMED SILICA	:	24 h EC 50 Water flea (Daphnia magna): > 10,000.00 mg/l
AMORPHOUS SILICA	:	no data available
CARBON BLACK	:	no data available

Toxicity to algae

TALC	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available
SCAVENGER	:	no data available
CLAY	:	no data available
HYDROPHOBIC FUMED SILICA	:	72 h EC 50 Green algae: > 10,000.00 mg/l
AMORPHOUS SILICA	:	no data available
CARBON BLACK	:	no data available

Toxicity to bacteria

TALC	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available
SCAVENGER	:	no data available
CLAY	:	no data available
HYDROPHOBIC FUMED SILICA	:	no data available
AMORPHOUS SILICA	:	no data available
CARBON BLACK	:	no data available

Biochemical Oxygen Demand (BOD)

TALC	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available
SCAVENGER	:	no data available
CLAY	:	no data available
HYDROPHOBIC FUMED SILICA	:	no data available
AMORPHOUS SILICA	:	no data available
CARBON BLACK	:	no data available

Chemical Oxygen Demand (COD)

TALC	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available
SCAVENGER	:	no data available
CLAY	:	no data available
HYDROPHOBIC FUMED SILICA	:	no data available
AMORPHOUS SILICA	:	no data available
CARBON BLACK	:	no data available

Additional ecological information

TALC	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available



SCAVENGER : no data available
 CLAY : no data available
 HYDROPHOBIC FUMED SILICA : no data available
 AMORPHOUS SILICA : no data available
 CARBON BLACK : no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Dispose of in accordance with all applicable local, state and federal regulations. The mixed material is an inert plastic and, as such, may be disposed of in a waste stream which is designated for land fill.

14. TRANSPORT INFORMATION

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
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U.S. DOT - ROAD

Not dangerous goods

U.S. DOT - RAIL

Not dangerous goods

U.S. DOT - INLAND WATERWAYS

Not dangerous goods

TRANSPORT CANADA - ROAD

Not dangerous goods

TRANSPORT CANADA - RAIL

Not dangerous goods

TRANSPORT CANADA - INLAND WATERWAYS

Not dangerous goods



INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

Not dangerous goods

*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

<p>WARNING! This product contains a chemical known to the State of California to cause cancer.</p>	<p>CARBON BLACK QUARTZ (SiO2) FURAN PROPYLENE OXIDE ACETALDEHYDE</p>
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SARA Hazard Classification - PART A

Acute Health Hazard
Chronic Health Hazard

SARA Hazard Classification - PART B

Acute Health Hazard
Chronic Health Hazard

SARA 313 Component(s) - PART A

4,4'-DIPHENYLMETHANE DIISOCYANATE 35.19 %



Notification status

US. Toxic Substances Control Act y (positive listing)
 Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List y (positive listing)
 (DSL). (Can. Gaz. Part II, Vol. 133)
 Australia. Industrial Chemical (Notification and Assessment) Act y (positive listing)
 Japan. Kashin-Hou Law List e (special case)
 Korea. Toxic Chemical Control Law (TCCL) List y (positive listing)
 Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act n (Negative listing)
 China. Inventory of Existing Chemical Substances y (positive listing)

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302) 14206 lbs

Reportable quantity - Components

4,4'-DIPHENYLMETHANE DIISOCYANATE 101-68-8 5000 lbs

	HMIS		NFPA	
	PART A	PART B	PART A	PART B
Health	2*	2*	3	2
Flammability	1	1	1	1
Physical hazards	1	0		
Instability			1	0
Specific Hazard	--	--	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by J-B Weld Company's Environmental Health and Safety Department (903-885-7696).

