

## Safety Data Sheet

## Firestone Building Products Company

### Section 1: Identification

#### Product identifier

**Product Name** • I.S.O. Stick™ Insulation Adhesive Winter Grade Part 1

**Synonyms** • Isocyanate portion of two-component polyurethane adhesive

#### Relevant identified uses of the substance or mixture and uses advised against

**Recommended use** • Isocyanate portion of two-component polyurethane adhesive. To dispense, properly mix with I.S.O. Stick Winter Grade Part 2.

**Restrictions on use** • Proper dispensing requires mixing with I.S.O. Stick Winter Grade Part 2

#### Details of the supplier of the safety data sheet

**Manufacturer** • Firestone Building Products Company  
200 4th Avenue S  
Nashville, TN 37201-2208  
United States

firestonemsds@bfdp.com

**Telephone (General)** • 800-428-4442

#### Emergency telephone number

**Manufacturer** • (800) 424-9300 - CHEMTREC

**Manufacturer** • (703) 527-3887 - CHEMTREC - International

### Section 2: Hazard Identification

#### United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

#### Classification of the substance or mixture

**OSHA HCS 2012**

- Skin Irritation 2
- Skin Sensitization 1
- Eye Irritation 2
- Acute Toxicity Inhalation 4
- Respiratory Sensitization 1
- Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation
- Germ Cell Mutagenicity 2
- Specific Target Organ Toxicity Repeated Exposure 1

#### Label elements

**OSHA HCS 2012**

**DANGER**



- Hazard statements**
- Causes skin irritation
  - May cause an allergic skin reaction
  - Causes serious eye irritation
  - Harmful if inhaled
  - May cause allergy or asthma symptoms or breathing difficulties if inhaled
  - May cause respiratory irritation
  - Suspected of causing genetic defects.
  - Causes damage to organs through prolonged or repeated exposure.

**Precautionary statements**

- Prevention**
- Obtain special instructions before use.
  - Do not handle until all safety precautions have been read and understood.
  - Do not breathe mist, vapors, and/or spray.
  - Wash thoroughly after handling.
  - Do not eat, drink or smoke when using this product.
  - Use only outdoors or in a well-ventilated area.
  - Contaminated work clothing should not be allowed out of the workplace.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - In case of inadequate ventilation wear respiratory protection.
- Response**
- IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor.
  - If on skin: Wash with plenty of water.
  - Take off contaminated clothing and wash before reuse.
  - Specific treatment, see supplemental first aid information.
  - If skin irritation or rash occurs: Get medical advice/attention.
  - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - If eye irritation persists: Get medical advice/attention.
  - IF exposed or concerned: Get medical advice/attention.
  - Get medical advice/attention if you feel unwell.
- Storage/Disposal**
- Store in a well-ventilated place. Keep container tightly closed.
  - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

**Other hazards**

- OSHA HCS 2012**
- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.
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**Canada**

According to: WHMIS 2015

**Classification of the substance or mixture**

- WHMIS 2015**
- Skin Irritation 2
  - Skin Sensitization 1
  - Eye Irritation 2
  - Acute Toxicity Inhalation 4
  - Respiratory Sensitization 1
  - Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation
  - Germ Cell Mutagenicity 2
  - Specific Target Organ Toxicity Repeated Exposure 1

**Label elements**

**WHMIS 2015**

**DANGER**



- Hazard statements**
- Causes skin irritation
  - May cause an allergic skin reaction
-

Causes serious eye irritation  
 Harmful if inhaled  
 May cause allergy or asthma symptoms or breathing difficulties if inhaled  
 May cause respiratory irritation  
 Suspected of causing genetic defects.  
 Causes damage to organs through prolonged or repeated exposure.

## Precautionary statements

- Prevention** • Obtain special instructions before use.  
 Do not handle until all safety precautions have been read and understood.  
 Do not breathe mist, vapors, and/or spray.  
 Wash thoroughly after handling.  
 Do not eat, drink or smoke when using this product.  
 Use only outdoors or in a well-ventilated area.  
 Contaminated work clothing should not be allowed out of the workplace.  
 Wear protective gloves/protective clothing/eye protection/face protection.  
 In case of inadequate ventilation wear respiratory protection.
- Response** • IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 Call a POISON CENTER/doctor/ if you feel unwell.  
 IF ON SKIN: Wash with plenty of water.  
 Take off contaminated clothing and wash it before reuse.  
 Specific treatment, see supplemental first aid information.  
 If skin irritation or rash occurs: Get medical advice/attention.  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 If eye irritation persists: Get medical advice/attention.  
 IF exposed or concerned: Get medical advice/attention.  
 Get medical advice/attention if you feel unwell.
- Storage/Disposal** • Store in a well-ventilated place. Keep container tightly closed.  
 Store locked up.  
 Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

## Other hazards

### WHMIS 2015

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

## Section 3 - Composition/Information on Ingredients

### Substances

- Material does not meet the criteria of a substance.

### Mixtures

Composition					
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive	Comments
Polymeric Isocyanates	CAS:9016-87-9	< 32%	Ingestion/Oral-Rat LD50 • 49 g/kg Inhalation-Rat LC50 • 490 mg/m <sup>3</sup> 4 Hour(s) Skin-Rabbit LD50 • >9400 mg/kg	OSHA HCS 2012: Acute Tox. 2 (Inhl); Eye Irrit. 2 WHMIS 2015: Acute Tox. 2 (Inhl); Eye Irrit. 2	NDA
				OSHA HCS 2012: Acute Tox. 2 (Inhl); Skin Irrit. 2; Eye Irrit. 2; Resp. Sens. 1; Skin Sens. 1; Muta. 2	

4,4'-Methylene Bisphenyl Isocyanate	CAS:101-68-8	23% TO 25%	Ingestion/Oral-Rat LD50 • 9200 mg/kg	(Inhl); STOT SE 3: Resp. Irrit. (Inhl); STOT RE 1 (Lungs / Inhl) <b>WHMIS 2015:</b> Acute Tox. 2 (Inhl); Skin Irrit. 2; Eye Irrit. 2; Resp. Sens. 1; Skin Sens. 1; Muta. 2 (Inhl); STOT SE 3: Resp. Irrit. (Inhl); STOT RE 1 (Lungs / Inhl)	NDA
Diphenylmethane Diisocyanate Mixed Isomers	CAS:26447-40-5	< 3%	NDA	<b>OSHA HCS 2012:</b> Acute Tox. 2 (Inhl); Skin Irrit. 2; Eye Irrit. 2; Resp. Sens. 1; Skin Sens. 1; STOT SE 3: Resp. Irrit. <b>WHMIS 2015:</b> Acute Tox. 2 (Inhl); Skin Irrit. 2; Eye Irrit. 2; Resp. Sens. 1; Skin Sens. 1; STOT SE 3: Resp. Irrit.	NDA

## Section 4: First-Aid Measures

### Description of first aid measures

- Inhalation**
- Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Keep patient warm. Get medical attention immediately if symptoms occur.
- Skin**
- Wash skin with soap and water. Take off contaminated clothing and wash before reuse. If irritation develops and persists, get medical attention.
- Eye**
- In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.
- Ingestion**
- Rinse mouth. Drink 1 - 2 glasses of water. Do NOT induce vomiting. Get medical attention immediately.

### Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

### Indication of any immediate medical attention and special treatment needed

- Notes to Physician**
- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

## Section 5: Fire-Fighting Measures

### Extinguishing media

- Suitable Extinguishing Media**
- CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray.

- Unsuitable Extinguishing Media**
- Do not use a direct stream of water.

### Special hazards arising from the substance or mixture

- Unusual Fire and Explosion Hazards**
- This product may ignite if exposed to sources of ignition at temperatures in excess of its flash point.

- Hazardous Combustion Products**
- If present in a fire or explosion, potential thermal decomposition byproducts include carbon monoxide, oxides of nitrogen, organic isocyanates, and hydrogen cyanide.

### Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.  
Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.  
Wear positive pressure self-contained breathing apparatus (SCBA).  
Move fire exposed containers if safe to do so. Cool fire exposed containers with water spray. Dike contaminated fire-control water for later disposal.

## Section 6 - Accidental Release Measures

### Personal precautions, protective equipment and emergency procedures

- Personal Precautions**
- Ventilate enclosed areas. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Emergency Procedures**
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Stay upwind. Keep out of low areas. Keep unauthorized personnel away. Ventilate closed spaces before entering.

### Environmental precautions

- Avoid release to the environment.

### Methods and material for containment and cleaning up

- Containment/Clean-up Measures**
- Absorb spilled material with a sorbent such as sawdust or calcium silicate hydrate. When absorbed, transfer to an impervious container. Neutralize with solution of 8-10% sodium carbonate and 2% liquid detergent in water (10:1 ratio of solution to product). Do not seal container, as CO<sub>2</sub> will be released. Neutralize in a well-ventilated area for at least 48 hours before sealing containers for disposal.

## Section 7 - Handling and Storage

### Precautions for safe handling

- Handling**
- Use only with adequate ventilation. Prevent formation of aerosols. Keep away from water as reaction can be initiated by water exposure. Persons with sensitivity to isocyanate should not handle/use this product. Use protective equipment as needed. Do not breath mist/vapours/spray. When handling, avoid contact with eyes; skin; and clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

### Conditions for safe storage, including any incompatibilities

- Storage**
- Store in original unopened containers to prevent contact with moisture and other incompatible materials. Keep container tightly closed. Store in a dry, well-ventilated place. Recommended temperature range for storage is 55-85°F. (12.8-29.4°C.)

## Section 8 - Exposure Controls/Personal Protection

### Control parameters

Exposure Limits/Guidelines						
	Result	ACGIH	Canada Alberta	Canada British Columbia	Canada Manitoba	Canada New Brunswick
4,4'-Methylene Bisphenyl Isocyanate (101-68-8)	TWAs	0.005 ppm TWA (listed under Methylene bisphenyl isocyanate (MDI))	0.005 ppm TWA; 0.05 mg/m <sup>3</sup> TWA	0.005 ppm TWA (listed under Methylene bisphenyl isocyanate (MDI))	0.005 ppm TWA (listed under Methylene bisphenyl isocyanate (MDI))	0.005 ppm TWA (listed under Methylene bisphenyl isocyanate); 0.051 mg/m <sup>3</sup> TWA (listed under Methylene bisphenyl isocyanate)
	Ceilings	Not established	Not established	0.01 ppm Ceiling (listed under Methylene bisphenyl isocyanate (MDI))	Not established	Not established

Polymeric Isocyanates (9016-87-9)	TWAs	Not established	0.005 ppm TWA; 0.07 mg/m <sup>3</sup> TWA	Not established	Not established	Not established
Exposure Limits/Guidelines (Con't.)						
	Result	Canada Northwest Territories	Canada Nova Scotia	Canada Nunavut	Canada Ontario	Canada Quebec
4,4'-Methylene Bisphenyl Isocyanate (101-68-8)	STELs	0.015 ppm STEL (listed under Methylene bisphenyl isocyanate)	Not established	0.015 ppm STEL (listed under Methylene bisphenyl isocyanate)	Not established	Not established
	TWAs	0.005 ppm TWA	0.005 ppm TWA (listed under Methylene bisphenyl isocyanate (MDI))	0.005 ppm TWA (listed under Methylene bisphenyl isocyanate)	0.005 ppm TWA (designated substances regulation, listed under Isocyanates, organic compounds (Methylene bisphenyl isocyanate (MDI))); 0.005 ppm TWA (applies to workplaces to which the designated substances regulation does not apply, listed under Methylene bisphenyl isocyanate (MDI))	0.005 ppm TWAEV; 0.051 mg/m <sup>3</sup> TWAEV
	Ceilings	Not established	Not established	Not established	0.02 ppm Ceiling (designated substances regulation, listed under Isocyanates, organic compounds (Methylene bisphenyl isocyanate (MDI)))	Not established
Exposure Limits/Guidelines (Con't.)						
	Result	Canada Saskatchewan	Canada Yukon	NIOSH	OSHA	
Diphenylmethane Diisocyanate Mixed Isomers (26447-40-5)	Ceilings	Not established	Not established	Not established	0.02 ppm Ceiling; 0.2 mg/m <sup>3</sup> Ceiling	
4,4'-Methylene Bisphenyl Isocyanate (101-68-8)	TWAs	0.005 ppm TWA (listed under Methylene bisphenyl isocyanate (MDI))	Not established	0.005 ppm TWA (listed under Methylene bisphenyl isocyanate); 0.05 mg/m <sup>3</sup> TWA	Not established	
	Ceilings	Not established	0.02 ppm Ceiling (listed under Methylene bisphenyl isocyanate (MDI)); 0.2 mg/m <sup>3</sup> Ceiling (listed under Methylene bisphenyl isocyanate (MDI))	0.020 ppm Ceiling (10 min); 0.2 mg/m <sup>3</sup> Ceiling (10 min)	0.02 ppm Ceiling; 0.2 mg/m <sup>3</sup> Ceiling	

### Exposure Control Notations

#### Canada Ontario

•4,4'-Methylene Bisphenyl Isocyanate (101-68-8): **Designated Substances:** (0.005 ppm TWA (listed under Isocyanates, organic compounds (Methylene bisphenyl isocyanate (MDI))); 0.02 ppm Ceiling (listed under Isocyanates, organic compounds (Methylene bisphenyl isocyanate

(MDI))

**Exposure Limits Supplemental****ACGIH**

•4,4'-Methylene Bisphenyl Isocyanate (101-68-8): **TLV Basis - Critical Effects:** (respiratory sensitization (listed under Methylene bisphenyl isocyanate (MDI)))

**Exposure controls****Engineering Measures/Controls**

- This material is designed to be used outdoors, in roofing applications. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Personal Protective Equipment****Respiratory**

- In case of insufficient ventilation, wear suitable respiratory equipment. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH or European Standard EN 149 certified respirator if exposure limits are exceeded or symptoms are experienced.

**Eye/Face**

- Wear chemical splash safety goggles.

**Skin/Body**

- Use impermeable gloves and protective clothing as necessary to prevent skin contact. Glove materials known to be effective against permeation by isocyanates include butyl rubber, nitrile rubber, and polychloroprene.

**Environmental Exposure Controls**

- In case of spills, keep product clear of sewers, waterways or land areas. Dispose of waste product in accordance with national and local laws and regulations.

**Key to abbreviations**

ACGIH = American Conference of Governmental Industrial Hygiene

TLV = Threshold Limit Value determined by the American Conference of Governmental Industrial Hygienists (ACGIH)

NIOSH = National Institute of Occupational Safety and Health

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

OSHA = Occupational Safety and Health Administration

TWAEV = Time-Weighted Average Exposure Value

STEL = Short Term Exposure Limits are based on 15-minute exposures

**Section 9 - Physical and Chemical Properties****Information on Physical and Chemical Properties**

<b>Material Description</b>			
Physical Form	Liquid	Appearance/Description	Brown liquid with aromatic odor.
Color	Brown	Odor	Aromatic
Odor Threshold	No data available		
<b>General Properties</b>			
Boiling Point	>= 93 °C(>= 199.4 °F)	Melting Point/Freezing Point	No data available
Decomposition Temperature	No data available	pH	No data available
Specific Gravity/Relative Density	= 1.2 Water=1	Water Solubility	Reacts
Viscosity	300 Centipoise (cPs, cP) or mPas		
<b>Volatility</b>			
Vapor Pressure	No data available	Vapor Density	No data available
Evaporation Rate	No data available		
<b>Flammability</b>			
Flash Point	220 °C(428 °F)	UEL	No data available
LEL	No data available	Autoignition	No data available
Flammability (solid, gas)	No data available		

Environmental			
Octanol/Water Partition coefficient	No data available		

## Section 10: Stability and Reactivity

### Reactivity

- May react with water and incompatible materials.

### Chemical stability

- Stable under normal temperatures and pressures.

### Possibility of hazardous reactions

- Hazardous Polymerization: May occur at temperatures >392°F./200°C.

### Conditions to avoid

- Contact with moisture, other materials that react with isocyanates, or temperatures above 200°C (392°F), may cause polymerization.

### Incompatible materials

- Water, alcohols, acids, alkalis, and amines.

### Hazardous decomposition products

- Carbon monoxide, carbon dioxide, nitrogen oxides, isocyanates, and hydrogen cyanide.

## Section 11 - Toxicological Information

### Information on toxicological effects

		Components
4,4'-Methylene Bisphenyl Isocyanate (23% TO 25%)	101-68-8	<p><b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 9200 mg/kg; <i>Behavioral:Somnolence (general depressed activity); Behavioral:Ataxia; Nutritional and Gross Metabolic:Changes in Chemistry or Temperature:Body temperature decrease</i>; Inhalation-Rat TClO • 2.4 mg/m<sup>3</sup> 6 Hour(s); <i>Lungs, Thorax, or Respiration:Structural or functional change in trachea or bronchi; Lungs, Thorax, or Respiration:Other changes; Biochemical:Metabolism (intermediary):Other proteins</i>;</p> <p><b>Irritation:</b> Eye-Rabbit • 100 mg • Moderate irritation; Skin-Rabbit • 500 mg 24 Hour(s);</p> <p><b>Multi-dose Toxicity:</b> Inhalation-Guinea Pig TClO • 2 mg/m<sup>3</sup> 3 Hour(s) 5 Day(s)-Intermittent; <i>Lungs, Thorax, or Respiration:Structural or functional change in trachea or bronchi; Lungs, Thorax, or Respiration:Changes in lung weight</i>;</p> <p><b>Mutagen:</b> Micronucleus test • Inhalation-Rat • 7.1 mg/m<sup>3</sup> 3 Hour(s); DNA adduct • Inhalation-Rat • 0.002 mg/L 17 Hour(s) 1 Year(s); Mutation in microorganisms • Unreported Route-Salmonella typhimurium • 0.02 mg/plate (+S9);</p> <p><b>Reproductive:</b> Inhalation-Rat TClO • 9 mg/m<sup>3</sup> 6 Hour(s)(6-15D preg); <i>Reproductive Effects:Maternal Effects:Other effects; Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system</i></p>
Polymeric Isocyanates (< 32%)	9016-87-9	<p><b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 49 g/kg; <i>Behavioral:Somnolence (general depressed activity); Gastrointestinal:Hypermotility, diarrhea; Nutritional and Gross Metabolic:Changes in Chemistry or Temperature:Body temperature decrease</i>; Inhalation-Rat LC50 • 490 mg/m<sup>3</sup> 4 Hour(s); <i>Sense Organs and Special Senses:Eye:Other; Lungs, Thorax, or Respiration:Respiratory depression; Blood:Hemorrhage</i>; Skin-Rabbit LD50 • &gt;9400 mg/kg;</p> <p><b>Irritation:</b> Eye-Rabbit • 100 mg • Mild irritation;</p> <p><b>Reproductive:</b> Inhalation-Rat TClO • 12 mg/m<sup>3</sup> 6 Hour(s)(6-15D preg); <i>Reproductive Effects:Maternal Effects:Other effects; Reproductive Effects:Effects on Embryo or Fetus:Extra embryonic structures; Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system</i>;</p> <p><b>Tumorigen / Carcinogen:</b> Inhalation-Rat TClO • 6 mg/m<sup>3</sup> 6 Hour(s) 2 Year(s)-Intermittent; <i>Tumorigenic:Equivocal tumorigenic agent by RTECS criteria; Lungs, Thorax, or Respiration:Tumors</i></p>



GHS Properties	Classification
Acute toxicity	OSHA HCS 2012 • Acute Toxicity - Inhalation 4 - ATEmix (inhl, dust/mist) = 0.72 mg/l 4-hr WHMIS 2015 • Acute Toxicity - Inhalation 4 - ATEmix (inhl, dust/mist) = 0.72 mg/l 4-hr
Skin corrosion/Irritation	OSHA HCS 2012 • Skin Irritation 2 WHMIS 2015 • Skin Irritation 2
Serious eye damage/Irritation	OSHA HCS 2012 • Eye Irritation 2 WHMIS 2015 • Eye Irritation 2
Skin sensitization	OSHA HCS 2012 • Skin Sensitizer 1 WHMIS 2015 • Skin Sensitizer 1
Respiratory sensitization	OSHA HCS 2012 • Respiratory Sensitizer 1 WHMIS 2015 • Respiratory Sensitizer 1
Aspiration Hazard	OSHA HCS 2012 • No data available WHMIS 2015 • No data available
Carcinogenicity	OSHA HCS 2012 • No data available WHMIS 2015 • No data available
Germ Cell Mutagenicity	OSHA HCS 2012 • Germ Cell Mutagenicity 2 WHMIS 2015 • Germ Cell Mutagenicity 2
Toxicity for Reproduction	OSHA HCS 2012 • No data available WHMIS 2015 • No data available
STOT-SE	OSHA HCS 2012 • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation WHMIS 2015 • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation
STOT-RE	OSHA HCS 2012 • Specific Target Organ Toxicity Repeated Exposure 1 WHMIS 2015 • Specific Target Organ Toxicity Repeated Exposure 1

## Potential Health Effects

### Inhalation

- Acute (Immediate)** • Harmful if inhaled. May cause respiratory irritation.
- Chronic (Delayed)** • May cause allergy or asthma symptoms or breathing difficulties if inhaled.

### Skin

- Acute (Immediate)** • Causes skin irritation. May cause skin sensitization. Symptoms include redness and skin rash.
- Chronic (Delayed)** • No data available

### Eye

- Acute (Immediate)** • Causes serious eye irritation.
- Chronic (Delayed)** • No data available

### Ingestion

- Acute (Immediate)** • The product is nontoxic by ingestion, but ingestion may cause nausea, vomiting, and/or gastrointestinal irritation.
- Chronic (Delayed)** • No data available

### Other

- Chronic (Delayed)** • Causes damage to the lungs through prolonged or repeated exposure via Inhalation. Long-term effect of Isocyanic acid, methylenedi-p-phenylene ester on the respiratory system of 318 workers suggests that such workers may develop fibrosis. Long-term exposure tends to restrict pulmonary function and cause decrease in CO single breath transfer factor.

**Mutagenic Effects**

- Repeated and prolonged exposure may cause mutagenic effects.

**Key to abbreviations**

LC = Lethal Concentration

LD = Lethal Dose

TC = Toxic Concentration

**Section 12 - Ecological Information****Toxicity**

- Material data lacking.

**Persistence and degradability**

- Material data lacking.

**Bioaccumulative potential**

- Material data lacking.

**Mobility in Soil**

- Material data lacking.

**Other adverse effects**

- No studies have been found.

**Section 13 - Disposal Considerations****Waste treatment methods****Product waste**

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

**Packaging waste**

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

**Section 14 - Transport Information**

	UN number	UN proper shipping name	Transport hazard class (es)	Packing group	Environmental hazards
DOT	Not Applicable	Not Regulated	Not Applicable	Not Applicable	NDA
TDG	Not Applicable	Not Regulated	Not Applicable	Not Applicable	NDA
IMO/IMDG	Not Applicable	Not Regulated	Not Applicable	Not Applicable	NDA
IATA/ICAO	Not Applicable	Not Regulated	Not Applicable	Not Applicable	NDA

**Special precautions for user**

- None specified.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

- No data available

**Section 15 - Regulatory Information****Safety, health and environmental regulations/legislation specific for the substance or mixture**

**SARA Hazard Classifications** • Acute, Chronic

State Right To Know				
Component	CAS	MA	NJ	PA
Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	No	No	No
4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Yes	Yes	Yes
Polymeric Isocyanates	9016-87-9	No	Yes	No

Inventory				
Component	CAS	Canada DSL	Canada NDSL	TSCA
Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Yes	No	Yes
4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Yes	No	Yes
Polymeric Isocyanates	9016-87-9	Yes	No	Yes

**Canada****Labor****Canada - WHMIS 1988 - Classifications of Substances**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	D1A, D2A, D2B
• Polymeric Isocyanates	9016-87-9	D1A, D2A, D2B

**Canada - WHMIS 1988 - Ingredient Disclosure List**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	0.1 %
• Polymeric Isocyanates	9016-87-9	Not Listed

**Environment****Canada - CEPA - Priority Substances List**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed

**United States****Labor****U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed

**U.S. - OSHA - Specifically Regulated Chemicals**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed

**Environment****U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	(listed under Methylene diphenyl diisocyanate)
• Polymeric Isocyanates	9016-87-9	Not Listed

**U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	5000 lb final RQ; 2270 kg final RQ
• Polymeric Isocyanates	9016-87-9	Not Listed

**U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed

**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed

**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed

**U.S. - CERCLA/SARA - Section 313 - Emission Reporting**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	1.0 % de minimis concentration (listed under Chemical Category N120, Diisocyanates, under Methylenebis (phenylisocyanate))
• Polymeric Isocyanates	9016-87-9	1.0 % de minimis concentration (listed under Chemical Category N120, Diisocyanates)

**U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed

**United States - California****Environment****U.S. - California - Proposition 65 - Carcinogens List**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed

**U.S. - California - Proposition 65 - Developmental Toxicity**

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
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• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed
<b>U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)</b>		
• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed
<b>U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)</b>		
• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed
<b>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</b>		
• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed
<b>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</b>		
• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed

## United States - Pennsylvania

### Labor

#### U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	
• Polymeric Isocyanates	9016-87-9	Not Listed

#### U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

• Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5	Not Listed
• 4,4'-Methylene Bisphenyl Isocyanate	101-68-8	Not Listed
• Polymeric Isocyanates	9016-87-9	Not Listed

## Section 16 - Other Information

<b>Revision Date</b>	• 22/February/2018
<b>Preparation Date</b>	• 22/February/2018
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### Key to abbreviations

NDA = No Data Available