

## 1. Identification

**Product identifier**                      **URETHANE ASPHALT HARDENER PART B**

**Other means of identification**   None.

**Recommended use**                      Not available.

**Recommended restrictions**        None known.

### Manufacturer/Importer/Supplier/Distributor information

**Company Name**                      Armor Limited, Inc.  
**Address**                                2410 US-15 South, Sumter, SC 29150

**After hours telephone number**    1-877-982-7667

**Normal work hours telephone number**    1-877-982-7667

**Website**                                www.armor-inc.com

**E-mail**                                 customerservice@armor-inc.com

**Emergency 24-hour telephone number**    CHEMTREC North America: 800-424-9300, International: +1-703-527-3887

**Information on operation hours**            8:00 a.m. to 5:00 p.m.

## 2. Hazard(s) identification

**Physical hazards**                      Not classified.

<b>Health hazards</b>	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Sensitization, respiratory	Category 1
	Sensitization, skin	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure	Category 2

**Environmental hazards**                Not classified.

**OSHA defined hazards**                Not classified.

### Label elements



**Signal word**                                Danger

**Hazard statement**                      Causes eye irritation. Causes skin irritation. Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. May cause respiratory irritation. May cause damage to organs through prolonged or repeated exposure.

### Precautionary statement

**Prevention**                                Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves. Use only outdoors or in a well-ventilated area. In case of inadequate ventilation wear respiratory protection. Contaminated work clothing should not be allowed out of the workplace. Wash thoroughly after handling.

<b>Response</b>	IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. Call a POISON CENTER/doctor if you feel unwell. 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. Immediately call a POISON CENTER/doctor. Specific treatment (see this label). Take off contaminated clothing and wash before reuse.
<b>Storage</b>	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.
<b>Supplemental information</b>	None.

### 3. Composition/information on ingredients

#### Mixtures

Chemical name	Common name and synonyms	CAS number	%
POLYMERIC DIPHENYLMETHANE DIISOCYANATE (pMDI)		9016-87-9	>=50.0 - <75.0
MDI		101-68-8	>=25.0 - <50
METHYLENEDIPHENYL DIISOCYANATE		26447-40-5	>=3.0 - <7.0
1,3-DIAZETIDINE-2,4-DIONE, 1,3-BIS[4-[(4-ISOCYANATOPHENYL) METHYL]PHENYL]-		17589-24-1	>=1.0 - <3.0
ISOCYANIC ACID, POLYMETHYLENEPOLYPHENYLENE ESTER, POLYMER WITH .ALPHA.-HYDRO-.OMEGA.-HYDROXY POLY( OXY-1,2-ETHANEDIYL)		57636-09-6	>=1.0 - <3.0
Other components below reportable levels			14

### 4. First-aid measures

<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.
<b>Skin contact</b>	Remove contaminated clothing immediately and wash skin with soap and water. Call a physician or poison control center immediately. Wash contaminated clothing before reuse. Wash clothing separately before reuse.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
<b>Ingestion</b>	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth thoroughly. Immediately rinse mouth and drink plenty of water (200-300 ml). Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Get medical attention immediately.
<b>Most important symptoms/effects, acute and delayed</b>	Causes eye irritation. May cause allergic skin reaction. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Coughing. Difficulty in breathing. Skin irritation. May cause redness and pain. Dermatitis. Rash. Prolonged exposure may cause chronic effects.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Symptoms may be delayed.
<b>General information</b>	In case of shortness of breath, give oxygen. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Keep victim under observation.

## 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water spray. Dry powder. Foam. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	Use a water spray to cool fire-exposed containers.
<b>Special protective equipment and precautions for firefighters</b>	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
<b>Fire fighting equipment/instructions</b>	Move containers from fire area if you can do so without risk. Do not get water inside container. In the event of fire, cool tanks with water spray.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Avoid skin contact and inhalation of vapors during disposal of spills. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	<p>Do not get water on spilled substance or inside containers.</p> <p>Large Spills: For spills, stop leaks and provide diking to contain the material. Prevent entry into sewage systems, ground and surface waters. If temporary control of isocyanate vapor is required, a blanket of protein foam or other suitable foam (available from most fire departments) may be placed over the spill. Transfer as much liquid as possible via pump or vacuum device into closed but not sealed containers for disposal.</p> <p>Small Spills: Absorb isocyanate with suitable absorbent material (see § 40 CFR, sections 260, 264 and 265 for further information). Shovel into open container. Spill area can be decontaminated with the following recommended decontamination solution: Mixture of 90 % water, 5-8 % household ammonia, 2-5 % detergent. Allow solution to stand for at least 10 minutes. Pick up with suitable absorbent material. Place into appropriately labeled waste containers. Do not make container pressure tight. Move container to a well-ventilated area (outside). Allow to stand for at least 48 hours to allow escape of evolved carbon dioxide. Dispose of absorbed material in accordance with regulations. For waste disposal, see section 13 of the SDS.</p> <p>Never return spills in original containers for re-use.</p> <p>For residues: The following measures should be taken for final cleanup: Spill area can be decontaminated with the following recommended decontamination solution: Mixture of 90 % water, 5-8 % household ammonia, 2-5 % detergent. Wash down spill area with decontamination solution. Allow solution to stand for at least 10 minutes. Pick up with suitable absorbent material. Place into appropriately labeled waste containers. Do not make container pressure tight. Move container to a well-ventilated area (outside). Allow to stand for at least 48 hours to allow escape of evolved carbon dioxide. Dispose of absorbed material in accordance with regulations</p>
<b>Environmental precautions</b>	Avoid discharge into drains, water courses or onto the ground.

## 7. Handling and storage

<b>Precautions for safe handling</b>	Observe good industrial hygiene practices. Do not handle until all safety precautions have been read and understood. Do not get this material in contact with eyes. Avoid forming spray/aerosol mists. Do not get this material in contact with skin. Do not get this material on clothing. Protect against moisture. Avoid prolonged exposure. Danger of bursting when sealed gaslight. If bulging of drum occurs, transfer to well ventilated area, puncture to relieve pressure, open vent and let stand for 48 hours before resealing. Provide adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Do not empty into drains.
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**Conditions for safe storage, including any incompatibilities**

Store in closed original container at temperatures between 0°C and 38°C. Store locked up. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Keep away from food, drink and animal feedingstuffs. Formation of CO<sub>2</sub> and build up of pressure possible. Keep container tightly closed and in a well-ventilated place. Outage of containers should be filled with dry inert gas at atmospheric pressure to avoid reaction with moisture.

## 8. Exposure controls/personal protection

### Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

#### US. OSHA Table Z-1 Permissible Exposure Limits (PEL) for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
MDI (CAS 101-68-8)	Ceiling	0.2 mg/m <sup>3</sup>
		0.02 ppm

#### US. ACGIH Threshold Limit Values (TLV)

Components	Type	Value
MDI (CAS 101-68-8)	TWA	0.005 ppm

#### NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended

Components	Type	Value
MDI (CAS 101-68-8)	IDLH	75 mg/m <sup>3</sup>

#### US. NIOSH: Pocket Guide to Chemical Hazards Recommended Exposure Limits (REL)

Components	Type	Value
MDI (CAS 101-68-8)	Ceiling	0.2 mg/m <sup>3</sup>
		0.02 ppm
	TWA	0.05 mg/m <sup>3</sup>
		0.005 ppm

### Biological limit values

No biological exposure limits noted for the ingredient(s).

### Appropriate engineering controls

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. Provide eyewash station and safety shower.

### Individual protection measures, such as personal protective equipment

#### Eye/face protection

Wear chemical splash goggles and face shield when eye and face contact is possible due to splashing or spraying of material.

#### Skin protection

##### Hand protection

Chemical resistant gloves are recommended. If contact with forearms is likely wear gauntlet style gloves. Neoprene, nitrile, polyethylene or PVC. Butyl rubber.

##### Other

Avoid contact with the skin. Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. Chemical resistant gloves.

#### Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

#### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

### General hygiene considerations

Do not get in eyes. Do not get this material in contact with skin. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower.

## 9. Physical and chemical properties

### Appearance

Brown Liquid

### Physical state

Liquid.

### Form

Liquid.

### Color

Dark amber.

### Odor

Aromatic. Mild.

<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	37.4 °F (3 °C)
<b>Initial boiling point and boiling range</b>	392 °F (200 °C)
<b>Flash point</b>	428.0 °F (220.0 °C) Open Cup
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	0.00001 mm Hg @ 20° C
<b>Vapor density</b>	Not available.
<b>Relative density</b>	1.22 g/cm <sup>3</sup> @20°C
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	>482 °F (>250 °C)
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	200 mPa·s
<b>Other information</b>	
<b>Bulk density</b>	10.17 lb/gal @25°C
<b>Density</b>	1.22 g/cm <sup>3</sup> @20°C
<b>Explosive properties</b>	Not explosive.
<b>Oxidizing properties</b>	Not oxidizing.

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	Risk of bursting. Reacts with water, with formation of carbon dioxide. Risk of exothermic reaction. Hazardous polymerization can occur. Contact with certain rubbers and plastics can cause brittleness of the substance/product with subsequent loss in strength.
<b>Conditions to avoid</b>	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Moisture. Contact with incompatible materials.
<b>Incompatible materials</b>	Acids. Amines. Alcohols. Water. Alkaline metals. Strong bases. Substances/products that react with isocyanates.
<b>Hazardous decomposition products</b>	Carbon monoxide, carbon dioxide, hydrogen cyanide, nitrogen oxides, aromatic isocyanates, gases/vapours. Gases/vapours.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Harmful if inhaled. May cause irritation to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
<b>Skin contact</b>	Causes skin irritation. May cause an allergic skin reaction.
<b>Eye contact</b>	Causes eye irritation.
<b>Ingestion</b>	May cause discomfort if swallowed.

<b>Symptoms related to the physical, chemical and toxicological characteristics</b>	Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Irritant effects. Irritating to eyes, respiratory system and skin. Irritating to mouth, throat, and stomach. Coughing. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Wheezing.
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### Information on toxicological effects

<b>Acute toxicity</b>	Harmful if inhaled.	
<b>Components</b>	<b>Species</b>	<b>Test Results</b>
METHYLENEDIPHENYL DIISOCYANATE (CAS 26447-40-5)		
<b>Acute</b>		
<b>Inhalation</b>		
<i>Vapor</i>		
Point estimate*		0.5 mg/l
* Point estimate = Converted acute toxicity point estimate		
<b>Skin corrosion/irritation</b>	Causes skin irritation.	
<b>Serious eye damage/eye irritation</b>	Causes eye irritation.	
<b>Respiratory or skin sensitization</b>		
<b>Respiratory sensitization</b>	May cause allergy or asthma symptoms or breathing difficulties if inhaled.	
<b>Skin sensitization</b>	May cause an allergic skin reaction.	
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
<b>Carcinogenicity</b>		
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>		
MDI (CAS 101-68-8)	3 Not classifiable as to carcinogenicity to humans.	
METHYLENEDIPHENYL DIISOCYANATE (CAS 26447-40-5)	3 Not classifiable as to carcinogenicity to humans.	
POLYMERIC DIPHENYLMETHANE DIISOCYANATE (pMDI) (CAS 9016-87-9)	3 Not classifiable as to carcinogenicity to humans.	
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)</b>		
Not listed.		
<b>US. National Toxicology Program (NTP) Report on Carcinogens</b>		
Not listed.		
<b>Reproductive toxicity</b>	Not classified.	
<b>Specific target organ toxicity - single exposure</b>	May cause respiratory irritation.	
<b>Specific target organ toxicity - repeated exposure</b>	May cause damage to organs through prolonged or repeated exposure.	
<b>Aspiration hazard</b>	Not available.	
<b>Chronic effects</b>	May cause damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful.	
<b>12. Ecological information</b>		
<b>Ecotoxicity</b>	Not expected to be harmful to aquatic organisms.	
<b>Persistence and degradability</b>	No data is available on the degradability of this product.	
<b>Bioaccumulative potential</b>	No data available.	
<b>Partition coefficient n-octanol / water (log Kow)</b>		
MDI	5.22	
<b>Mobility in soil</b>	No data available.	
<b>Other adverse effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.	
<b>13. Disposal considerations</b>		
<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not discharge into drains, water courses or onto the ground. Dispose of contents/container in accordance with local/regional/national/international regulations.	
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.	
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.	

**Waste from residues / unused products**

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Avoid discharge into water courses or onto the ground.

**Contaminated packaging**

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

**14. Transport information****DOT**

Not regulated as dangerous goods.

**IATA**

Not regulated as dangerous goods.

**IMDG**

Not regulated as dangerous goods.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not established.

**15. Regulatory information****US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.

**Toxic Substances Control Act (TSCA)****TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Not listed.

**SARA 304 Emergency release notification**

Not regulated.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)**

Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)****SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical**

Yes

**Classified hazard categories**

Acute toxicity (any route of exposure)  
Skin corrosion or irritation  
Serious eye damage or eye irritation  
Respiratory or skin sensitization  
Specific target organ toxicity (single or repeated exposure)

**SARA 313 (TRI reporting)**

Chemical name	CAS number	% by wt.
MDI	101-68-8	>=25.0 - <50
POLYMERIC DIPHENYLMETHANE DIISOCYANATE (pMDI)	9016-87-9	>=50.0 - <75.0

**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

MDI (CAS 101-68-8)

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Safe Drinking Water Act (SDWA)**

Contains component(s) regulated under the Safe Drinking Water Act.

**US state regulations**

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

## California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)  
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information, including date of preparation or last revision

**Issue date** 09-30-2024

**Revision date** 06-18-2025

**Version #** 02

**References** ACGIH  
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices  
EPA: AQUIRE database  
IARC Monographs. Overall Evaluation of Carcinogenicity  
National Toxicology Program (NTP) Report on Carcinogens  
NLM: Hazardous Substances Data Base  
US. IARC Monographs on Occupational Exposures to Chemical Agents

**Disclaimer** The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.