Safety Data Sheet ArmorSeal 100 AL Side A

Section 1: Identification

Product Name: ArmorSeal 100 AL Side A
Product Code: POL166
Material Uses: Component of a Polyurethane System
Supplier:

ArmorThane USA Inc.
2660 North Eastgate Avenue
Springfield, MO, USA 65803
Telephone: 417-831-5090 Fax: 417-831-4397

ArmorThane Coatings Inc.
100, 10803 – 182 Street
Edmonton, AB, Canada T5S 1J5
Telephone: 780-444-6200 Fax: 780-444-9405

Emergency Contact: USA – Chemtrec: 800-424-9300
Canada – Canutec: 613-996-6666
Outside USA and Canada – call Chemtrec collect: 703-527-3887

Section 2: Hazards Identification

Physical State: Liquid
Classification of the Substance or Mixture: Specific Target Organ Toxicity – Single Exposure (Respiratory Tract Irritation) – Category 3
Specific Target Organ Toxicity – Repeated Exposure – Category 2
Skin Irritation – Category 2
Eye Irritation – Category 2
Respiratory Sensitizer (Solid/Liquid) – Category 1
Skin Sensitizer – Category 1
Carcinogenicity – Category 2
Acute Toxicity, Oral – Category 5

GHS Label Elements:
Hazard Pictograms:

Signal Word: DANGER

Hazard Statements: May be harmful if swallowed
Suspected of causing cancer
Causes serious eye irritation
May cause allergy or asthma symptoms or breathing difficulties if inhaled
Causes skin irritation
May cause an allergic skin reaction
May cause damage to organs through prolonged or repeated exposure
May cause respiratory irritation

Precautionary Statements: If medical advice is needed, have product container or label at hand. Keep out of reach of children. Read label before use. Obtain special instructions before use. Do not handle until all safety precautions

have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Avoid breathing dust/fumes/gas/mist/vapors/spray. In case of inadequate ventilation, wear respiratory protection. Contaminated work clothing should not be allowed out of the workplace. Do not breathe dust/fumes/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Keep container tightly closed. Call a POISON CENTER/doctor if you feel unwell. If exposed or concerned, get medical advice/attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. If eye irritation persists, 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. IF ON SKIN: Wash with plenty of water. See section 4 for specific treatment. If skin irritation occurs, get medical advice/attention. Take off contaminated clothing and wash it before reuse. If skin irritation or a rash occurs, get medical advice/attention. Get medical advice/attention if you feel unwell. Store locked up. Store in a well-ventilated place. Dispose of contents/container to an approved waste disposal plant.

See toxicological information (Section 11).

General Information: Read the entire SDS for a more thorough evaluation of the hazards.

Section 3: Composition/Information on Ingredients

Substance/Mixture: Mixture

Ingredient Name	CAS Number	Percentage
4’4’-Methylenediphenyl diisocyanate	101-68-8	33-60
Polyurethane prepolymer	68092-58-0	28-52
MDI (Monomer)	26447-40-5	0.9-1.5

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Section 4: First Aid Measures

Eye Contact: Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do so. Continue rinsing 15-20 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. If eye irritation persists, get medical advice/attention.
Skin Contact: Take off contaminated clothing, shoes, leather goods (e.g. watchbands, belts). Gently blot or brush away excess product. Wash with plenty of lukewarm, gently flowing water for a duration of 15-20 minutes. If skin irritation of rash occurs, get medical advice/attention. Wash contaminated clothing before reuse or discard. If exposed or concerned, get medical advice/attention.
Inhalation: Remove source of exposure or move person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms, call a POISON CENTER/doctor. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by the POISON CENTER/doctor. If exposed/feel unwell/concerned, call a POISON CENTER/doctor. Eliminate all ignition sources if safe to do so.
Ingestion: Rinse mouth. Do NOT induce vomiting. Give 1 or 2 glasses of milk or water to drink and get medical attention/advice. If exposed or concerned, get medical advice/attention.

Section 5: Firefighting Measures

Flash Point and Method Used: 230°F (110°C)
Suitable Extinguishing Media: Dry chemical, foam, carbon dioxide are recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Sand or earth may be used for small fires only.
Not Suitable Extinguishing Media: If water is used, use very large quantities of cold water. The reaction between water and hot isocyanate may be vigorous.
Specific Hazards in Case of Fire: Excessive pressure or temperature may cause explosive rupture of containers. Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may rupture them.
Firefighting Procedures: Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water may be ineffective but can be used to cool containers exposed to heat or flame. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.
Special Protective Actions: Wear NIOSH approved self-contained breathing apparatus in positive pressure mode with full-face piece. Boots, gloves (neoprene), goggles, and full protective clothing are also required. Care should always be exercised in dust/mist areas.

Section 6: Accidental Release Measures

Emergency Procedure: ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch or walk through spilled material. Isolate hazard area and keep unnecessary people away. Remove all possible sources of ignition in the surrounding area. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. If spilled material is cleaned up using a regulated solvent, the resulting waste mixture may be regulated.
Recommended Equipment: Appropriate dust or face mask to eliminate breathing foam dust particulates.
Personal Precautions: Avoid breathing vapors. Avoid contact with skin, eyes or clothing. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing.
Environmental Precautions: Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways by using sand, earth, or other appropriate barriers.
Methods and Materials for Containment and Cleaning Up: Cover container, but do not seal, and remove from work area. Prepare a decontamination solution as below. Treat the spill area with the decontamination solution, using 10 parts of the solution for each part of the spill, and allow it to react for at least 15 minutes. Carbon dioxide will be evolved, leaving insoluble polyureas. Residues from spill cleanup, even when treated as described, may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste.
Slowly stir the isocyanate waste into the decontamination solution. Let stand for 48 hours, allowing the evolved carbon dioxide to vent away. Residues may still be subject to RCRA storage and disposal requirements. Dispose of in compliance with all relevant local, state/provincial, and federal laws and regulations regarding treatment.
Liquid Decontaminants (Percentages by Weight or Volume):
Decontaminant Solution 1: 5-10% sodium carbonate, 0.2-2% liquid detergent, water to make up to 100%.
Decontaminant Solution 2: 3-8% concentrated ammonia solution, 0.2-2% liquid detergent, water to make up to 100%

Decontaminant Solution 1 reacts slower with diisocyanates, but is more environmentally friendly. Decontaminant Solution 2 contains ammonia, which present health hazards. See the ammonia supplier's safety information.

For major spills in the USA, call Chemtrec at 800-424-9300, and in Canada, call Canutec at 613-996-6666.

Section 7: Handling and Storage

General: Wash hands after use. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or mists. Use good personal hygiene practices. Eating, drinking, and smoking in work areas is prohibited. Remove contaminated clothing and protective equipment before entering eating areas. Eyewash stations and showers should be available in areas where this material is used and stored.
Ventilation Requirements: Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source.
Storage Room Requirements: Keep container(s) tightly closed and properly labeled. Store in a cool, dry, well-ventilated areas away from heat, direct sunlight, strong oxidizers, and any incompatibilities. Store in approved containers and protect against physical damage. Keep containers securely sealed when not in use. Indoor storage should meet OSHA standards and appropriate fire codes. Containers that have been opened must be carefully resealed to prevent leakage. Empty containers retain residue and may be dangerous. Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems in areas where this product is used and stored. Keep liquid and vapors away from sparks and flame, store in containers above ground and surrounded by dikes to contain spills or leaks. Do not cut, drill, grind, weld, or perform similar operations on or near containers.

Section 8: Exposure Controls/Personal Protection

Occupational Exposure Limits

	Exposure Limits			
Ingredient	**OSHA TWA**	**OSHA Tables Z1, 2, 3**	**NIOSH TWA**	**ACGIH TWA**
4,4'-Methylenedipphenyl diisocyanate	0.02 ppm ceiling 0.2 mg/m^3 ceiling	1	0.005 ppm 0.050 mg/m^3	0.005 ppm 0.051 mg/m^3

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.
Skin Protection: Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use of an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Launder soiled clothes or properly dispose of contaminated material, which cannot be decontaminated.
Eye Protection: Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids. If additional protection is needed for entire face, use in combination with a face shield.
Respiratory Protection: If airborne concentrations exceed or are expected to exceed the TLV, use MSHA/NIOSH approved positive pressure supplied pressure supplied air respirator with a full face piece or air supplied hood. For

emergencies, use a positive pressure self-contained breathing apparatus. Air purifying (cartridge type) respirators are not approved for protection against isocyanates.

Section 9: Physical and Chemical Properties

Physical State: Liquid
Appearance: Viscous liquid
Odor: Mild aromatic
Odor Threshold: N/A
pH: N/A
Boiling Point: Low: 392°F (200°C), High: N/A
Melting/Freezing Point: N/A
Flash Point: 230°F (110°C), COC
Evaporation Rate: Slower than ether
Flammability: N/A
Lower and Upper Explosive Limits: N/A
Vapor Pressure: N/A
Vapor Density: Heavier than air
Specific Gravity/Density: 1.16
Solubility in Water: Reacts with water
Auto-Ignition Temperature: N/A
Decomposition Temperature: N/A
Viscosity: N/A
Density: 9.69 lb/gal
VOC Regulatory: 0.00 lb/gal
VOC Side A & B Combined: N/A

Section 10: Stability and Reactivity

Chemical Stability: Material is stable at standard temperature and pressure.
Conditions to Avoid: Heat, high temperature, open flame, sparks, and moisture. Contact with incompatible materials in a closed system will cause liberation of carbon dioxide and buildup of pressure.
Hazardous Reactions/Polymerization: Will not occur under normal conditions, but under high temperatures above 400°F (204°C), in the presence of alkalis, tertiary amines, and metal compounds will accelerate polymerization. Possible evolution of carbon dioxide gas may rupture closed containers.
Incompatible Materials: This product will react with any material containing active hydrogens, such as water, alcohol, ammonia, amines, alkalis and acids. The reaction with water is slow under 122°F (50°C), but is accelerated at higher temperature in the presence of alkalis, tertiary amines, and metal compounds. Some reactions can be violent. Material can react with strong oxidizing agents.
Hazardous Decomposition Products: Carbon dioxide, carbon monoxide, nitrogen oxides, trace amounts of hydrogen cyanide and unidentified organic compounds may be formed during combustion.

Section 11: Toxicological Information

Toxicity: 4,4'-Methylenediphenyl diisocyanate (101-68-8): LC50 (rat): 369-490 mg/m^3 (aerosol) (4 hour exposure) (1); LC50 (rat): 178 mg/m^3 (17.4 ppm) (duration of exposure not reported) (2); LD50 (oral, rat): greater than 10,000 mg/kg (1,2); LD50 (dermal, rabbit): greater than 10,000 mg/kg (1,2); LD50 (oral, mouse): 2,200 mg/kg (3)
Skin Corrosion/Irritation: Isocyanates react with skin protein and moisture and can cause irritation. Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and in some cases, skin sensitization. Individuals who have developed a skin sensitization can develop these symptoms as a result of contact with very small amounts of liquid material or as a result of exposure to vapor. Causes skin irritation.
Serious Eye Damage/Irritation: Liquid, aerosols, or vapors are severely irritating and can cause pain, tearing, reddening and swelling. Prolonged vapor contact may cause conjunctivitis. Any level of contact should not be left untreated. Causes serious eye irritation.
Carcinogenicity: Suspected of causing cancer.
Respiratory/Skin Sensitization: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ Cell Mutagenicity: No data available
Reproductive Toxicity: No data available
Specific Target Organ Toxicity – Single Exposure: High vapor concentrations may cause central nervous system (CNS) depression as evidenced by giddiness, headache, dizziness, and nausea. Persons with a pre-existing, nonspecific bronchial hyperactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). As a result of previous repeated overexposures or a single large dose, certain individuals may develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV. May cause respiratory irritation.
Specific Target Organ Toxicity – Repeated Exposure: Chronic overexposure to isocyanate has also been reported to cause lung damage (including decrease in lung function) which may be permanent. May cause damage to organs through prolonged or repeated exposure.
Aspiration Hazard: No data available
Acute Toxicity: May be harmful if swallowed.

Section 12: Ecological Information

Toxicity: No data available
Persistence and Degradability: No data available
Bioaccumulative Potential: No data available
Mobility in Soil: No data available
Other Adverse Effects: No data available

Section 13: Disposal Considerations

Waste Disposal: Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal whether the product meets RCRA criteria for hazardous waste. Waste management should be in full compliance with federal, state/provincial, and local laws. Empty containers retain product which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld, or use for any other purposes. Retain drums to reclamation centers for proper cleaning and reuse.
Disposal should be in accordance with applicable regional, national, and local laws and regulations

Section 14: Transport Information

Proper Shipping Name:
DOT: Not regulated
TDG: Not regulated
IMDG: Not regulated
IATA: Not regulated

Section 15: Regulatory Information

4,4-Methylenediphenyl diisocyanate (101-68-8) (33-60% by weight): DSL, CERCLA, HAPS, SARA 312, VHAPS, VOC, TSCA
Polyurethane prepolymer (68092-58-0) (28-52% by weight): DSL, SARA 312, TSCA
MDI (Monomer) (26447-40-5) (0.9-1.5% by weight): DSL, SARA312, VOC, TSCA

Section 16: Other Information

Preparation Date: July 31, 2019

Disclaimer: The data set forth in this sheet is based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. ArmorThane makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof. ArmorThane USA Inc. and/or ArmorThane Coatings Inc. make no representations or warranties as to the results of the use of the products and assume no obligation in connection therewith. Any written, oral, testing, or technical application advice is to the best of ArmorThane's knowledge and believed to be correct. It is to be considered only an indication without obligation. Customer is reminded that he must satisfy himself that the product supplied by ArmorThane is suitable for his purpose and conditions of use. Application, uses, and transformation of the products which are beyond our control, are the exclusive responsibility of the customer/applicator. Liability of ArmorThane for all claims, whether arising out of breach of warranty, negligence, strict liability, or otherwise, is limited to the purchase price of the material only.

User's Responsibility: A bulletin as this cannot be expected to cover all possible individual situations. As the user has the responsibility to provide a safe workplace, all aspects of an individual operation should be examined to determine if, or where, precautions, in addition to those described herein, are required. Any health hazard and safety information herein should be passed on to your customers and employees, as the case may be.

For Your Protection: ArmorThane warrants only that its products meet the specification stated in the sales contract. Typical properties, where stated, are to be considered as representative of current production and should not be treated as specifications. While all the information presented in this document is believed to be reliable and to represent the best available data on these products, no guaranty, warranty, or representation is made, intended, or implied as to the correctness, or sufficiency of any information, or as to the merchantability or suitability or fitness or any chemical compounds or other products for any particular use or purpose, or that any chemical compounds or other compounds or the use thereof are not subject to a claim by a third party for infringement of any patent or other intellectual property right. The user should conduct sufficient investigation to

establish the suitability of any product for its intended use. Liability of ArmorThane for all claims, whether arising out of breach of warranty, negligence, strict liability, or otherwise, is limited to the purchase price of the material. Products may be toxic and require special precautions in handling. For all products listed, the user should obtain detailed information on toxicity, together with proper shipping, handling, and storage procedures, and comply with all applicable safety and environmental standards. Toxicity and risk characteristics of chemical compounds and other products may differ when used with other materials or in a manufacturing or other process. Those risk characteristics should be determined by the user and made known to handlers, processors, and end user.

Safety Data Sheet ArmorSeal 100 AL Side B

Section 1: Identification

Product Name: ArmorSeal 100 AL Side B
Product Code: POL167
Material Uses: Component of a Polyurethane System
Supplier:

ArmorThane USA Inc.
2660 North Eastgate Avenue
Springfield, MO, USA 65803
Telephone: 417-831-5090 Fax: 417-831-4397

ArmorThane Coatings Inc.
100, 10803 – 182 Street
Edmonton, AB, Canada T5S 1J5
Telephone: 780-444-6200 Fax: 780-444-9405

Emergency Contact: USA – Chemtrec: 800-424-9300
Canada – Canutec: 613-996-6666
Outside USA and Canada – call Chemtrec collect: 703-527-3887

Section 2: Hazards Identification

Physical State: Liquid
OSHA/HCS Status: This material is classified as hazardous under OSHA Hazard Communication Standard 29 CFR 1910.1200.
Classification of the Substance or Mixture:
Acute Aquatic Toxicity – Category 3
Acute Toxicity Dermal – Category 5
Acute Toxicity Oral – Category 4
Carcinogenicity – Category 2
Chronic Aquatic Toxicity – Category 3
Serious Eye Damage – Category 1
Skin Corrosion – Category 1C
Specific Target Organ Toxicity – Repeated Exposure – Category 2
Specific Target Organ Toxicity – Single Exposure – Category 1

GHS Label Elements:
Hazard Pictograms:

Signal Word: DANGER
Hazard Statements:
May be harmful in contact with skin
Harmful if swallowed
Suspected of causing cancer
Causes serious eye damage
Causes severe skin burns and eye damage
May cause damage to organs through prolonged or repeated exposure
Causes damage to organs
Harmful to aquatic life
Harmful to aquatic life with long lasting effects

Precautionary Statements: If medical advice is needed, have product container or label at hand. Keep out of reach of children. Read label before use. Avoid release to the environment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Do not breathe dust/fumes/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Call a POISON CENTER/doctor if you feel unwell. IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If exposed or concerned, 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. Immediately call a POISON CENTER or doctor. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water (or shower). Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Specific treatment: see section 4 of this SDS. Get medical advice/attention if you feel unwell. If exposed or concerned, call a POISON CENTER/doctor. Store locked up. Dispose of contents/container to an approved waste disposal plant.

See toxicological information (Section 11).

General Information: Read the entire SDS for a more thorough evaluation of the hazards.

Section 3: Composition/Information on Ingredients

Substance/Mixture: Mixture

Ingredient Name	CAS Number	Percentage
Polyoxypropylenediamine	9046-10-0	21-37
Aromatic amine	68479-98-1	4-8
Dipropylene glycol	25265-71-8	2-4
1,4-Diazobicyclo (2,2,2) octane	280-57-9	1.2-2
Silica, crystalline	14808-60-7	0.9-1.4
Carbon black	1333-86-4	0.1-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Section 4: First Aid Measures

Eye Contact: Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses if present and easy to do so. Continue rinsing for a duration of 15-20 minutes. Take care not to rinse the contaminated water into the unaffected eye or onto the face. If eye irritation persists, get medical advice/attention.
Skin Contact: Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Gently blot or brush away excess product. Wash with plenty of lukewarm, gently flowing water for a duration of 15-20 minutes. If skin irritation or rash occurs, get medical advice/attention. Wash contaminated clothing before reuse, or discard. If exposed or concerned, get medical advice/attention.
Inhalation: Remove source of exposure or move person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms, call a POISON CENTER/doctor. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by the POISON CENTER/doctor. If exposed/feel unwell/concerned, get medical advice/attention.

Ingestion: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. If vomiting occurs naturally, lie on your side, in the recovery position. Give 1 or 2 glasses of milk or water to drink and refer person to medical personnel. Do not give anything by mouth to an unconscious person. If exposed or concerned, get medical advice/attention

Section 5: Firefighting Measures

Flash Point: 201°F (94°C)
Suitable Extinguishing Media: Dry chemical, foam, carbon dioxide, water spray, or fog are recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Sand or earth may be used for small fires only.
Specific Hazards in Case of Fire: Sudden reaction and fire may result when the product is exposed to oxidizing agents.
Firefighting Procedures: Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water may be ineffective but can be used to cool containers exposed to heat or flame. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid.
Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.
Special Protective Actions: Wear NIOSH approved self-contained breathing apparatus in positive pressure mode with full-face piece. Boots, gloves (neoprene), goggles, and full protective clothing are also required. Care should always be exercised in dust/mist areas.

Section 6: Accidental Release Measures

Emergency Procedure: Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Clean up immediately. ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in the immediate area).
Recommended Equipment: Positive pressure, full-face piece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved).
Personal Precautions: Avoid breathing vapors. Avoid contact with skin, eyes or clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Environmental Precautions: Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers.
Methods and Materials for Containment and Cleanup: Soak up material with absorbent and shovel into a chemical waste container. Cover container, but do not seal, and remove from work area. Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste.

For major spills in the USA, call Chemtrec at 800-424-9300, and in Canada, call Canutec at 613-996-6666.

Section 7: Handling and Storage

General: Wash hands after use. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or mists. Use good personal hygiene practices. Eating, drinking, and smoking in work areas is prohibited. Remove contaminated clothing and protective equipment before entering eating areas. Eyewash stations and showers should be available in areas where this material is used and stored.
Ventilation Requirements: Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source.
Storage Room Requirements: Keep container(s) tightly closed and properly labelled. Store in cool, dry, well-ventilated areas away from heat, direct sunlight, strong oxidizers, and any incompatibilities. Store in approved containers and protect against physical damage. Keep containers securely sealed when not in use. Indoor storage should meet OSHA standards and appropriate fire codes. Containers that have been opened must be carefully resealed to prevent leakage. Empty containers retain residue and may be dangerous. Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems in areas where this product is used and stored. Store in tightly sealed containers to protect from atmospheric moisture. Store in a cool dry area. Store liquid in containers above ground and surround by dikes to contain spills or leaks. Ground and bond containers and receiving equipment. Avoid static electricity by grounding.

Section 8: Exposure Controls/Personal Protection

		Exposure Limits			
Ingredient	**OSHA TWA**	**OSHA Tables Z1,2,3**	**NIOSH TWA**	**NIOSH Carcinogen**	**AGCIH TWA**
Carbon black	3.5	1	3.5a mg/m^3	1	3 (I|) mg/m^3
Silica, crystalline	a ppm [10 mg/m^3 percent SiO2+2/250 percent SiO2+5 mppcf]; [30 mg/m^3 percent SiO2+2]	1,3	0.05e mg/m^3	1	0.025 (R) mg/m^3

Appropriate Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.
Individual Protection Measures:
Eye/Face Protection: Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids. If additional protection is needed for entire face, use in combination with a face shield.
Skin Protection: Use of gloves approved to be relevant standards made from the following material may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use of an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization. The type of protective equipment must be selected according to the concentrations and amount of the dangerous substance at the specific workplace. Launder soiled clothes or properly dispose of contaminated material, which cannot be decontaminated.
Respiratory Protection: If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR

1910.134 and ANSI Z88.2 should be followed. Check with respiratory protective equipment suppliers. When airborne concentrations exceed or are expected to exceed the TLV, us MSHA/NIOSH approved positive pressure supplied air respirator with a full-face piece or an air supplied hood. For emergencies, use a positive pressure self-contained breathing apparatus.

Section 9: Physical and Chemical Properties

Physical State: Liquid
Appearance: Pigmented liquid
Odor: Mild chemical
Odor Threshold: N/A
pH: N/A
Boiling/Condensation Point: Low: 302°F (150°C), High: N/A
Melting/Freezing Point: N/A
Flash Point: 201°F (94°C)
Evaporation Rate: Slower than ether
Flammability: N/A
Lower and Upper Explosive Limits: N/A
Vapor Pressure: N/A
Vapor Density: Heavier than air
Density: 8.76 lb/gal
Solubility in Water: N/A
Partition Co-Efficient: n-octanol/water: N/A
Auto-Ignition Temperature: N/A
Decomposition Temperature: N/A
Viscosity: N/A
Specific Gravity: 1.06
VOC Regulatory: 0.00 lb/gal
VOC Side A & B Combined: Not available

Section 10: Stability and Reactivity

Chemical Stability: This product is stable at standard temperature and pressure.
Conditions to Avoid: Heat, high temperature, open flame, and moisture. Avoid contact with incompatible materials.
Hazardous Reactions/Polymerization: Will not occur.
Incompatible Materials: This product will react with any material containing isocyanates. Some reactions can be violent.
Hazardous Decomposition Products: Combustion products are organic vapors and thermal decomposition fragments.

Section 11: Toxicological Information

Skin Corrosion/Irritation: Product may be absorbed through skin and cause nausea, headache and general discomfort. Causes severe skin burns and eye damage.

Serious Eye Damage/Irritation: Vapors can irritate the eyes. Chemical burns may result due to overexposure. Effects of exposure may be delayed. Causes serious eye damage.
Carcinogenicity: Suspected of causing cancer.
Respiratory/Skin Sensitization: Inhalation: Severe overexposure may induce respiratory sensitization with asthma like symptoms. These symptoms may be immediate or delayed up to several hours after exposure. Chronic exposures may result in permanent decreases in lung function.
Skin sensitization may develop after repeated and/or prolonged contact.
Germ Cell Mutagenicity: No data available
Reproductive Toxicity: No data available
Specific Target Organ Toxicity – Single Exposure: Causes damage to organs.
Specific Target Organ Toxicity – Repeated Exposure: May cause damage to organs through prolonged or repeated exposure.
Aspiration Hazard: No data available
Acute Toxicity:
If ingested: In humans, irritation or chemical burns of the mouth, pharynx, esophagus and stomach can develop following ingestion, and injury may be severe and cause death.
Repeated and prolonged exposure at low levels may result in adverse skin and eye effects, liver and kidney disorders.
May be harmful in contact with skin. Harmful if swallowed.
Chronic Exposure:
Silica, crystalline: Prolonged inhalation of respirable crystalline silica dust can result in lung disease (i.e. silicosis and/or lung cancer). Symptoms include coughing, shortness of breath, wheezing and reduced pulmonary function.
Carbon black: In 1996, the IARC re-evaluated Carbon Black as a Group 2B carcinogen. This evaluation is given to carbon black for which there is inadequate human evidence, but sufficient animal evidence. Prolonged inhalation of carbon black can result in lung disease. Symptoms include coughing, shortness of breath, wheezing and reduced pulmonary function.
Potential Health Effects – Miscellaneous:
Carbon black: Is an IARC, NTP or OSHA carcinogen. Has shown carcinogenic activity in laboratory animals at high doses. Significance to man is unknown. The following medical conditions may be aggravated by exposure: asthma, respiratory disease. WARNING: This chemical is known to the State of California to cause cancer.
Silica, crystalline: Is an IARC, NTP, or OSHA carcinogen. Repeated overexposure to crystalline silica may lead to x-ray changes and chronic lung disease. Inhalation of high dust concentrations may cause breathing difficulties and/or lung injury. WARNING: This chemical is known to the State of California to cause cancer.

Carbon Black: LC50 (rat): 6750 mg/m^3 (4-hour exposure); cited as 27000 mg/m^3 (27 mg/L) (1-hour exposure) (3)
Polyoxypropylenediamine: LD50 (dermal, rabbit): 2090 mg/kg (based on raw material SDS); LD50 (oral, rat): 480 mg/kg (based on raw material SDS)

Section 12: Ecological Information

Toxicity: Harmful to aquatic life. Harmful to aquatic life with long lasting effects.
Mobility in Soil: No data available
Other Adverse Effects: No data available
Persistence and Degradability: Carbon Black: Carbon black's insolubility in water results in it not being biodegradable in any medium or by biota. It is considered persistent in the natural environment.
Bio-accumulative Potential: Carbon Black: A relevant bioaccumulation potential of carbon black is not expected based on its insolubility in organic solvents and in water. Furthermore, since the aggregate diameter of carbon black varies between 80 nm and 810 nm, bioaccumulation of particulate carbon black is not likely owing to the large diameter of the solid aggregate particles.

Section 13: Disposal Considerations

Waste Disposal: Under RCRA, it is the responsibility of the user of the product, to determine at the time of disposal whether the product meets RCRA criteria for hazardous waste. Waste management should be in full compliance with federal, state, and local laws. Empty containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld, or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.
Disposal should be in accordance with applicable regional, national, and local laws and regulations

Section 14: Transport Information

Proper Shipping Name:
DOT: UN/NA # 2735
UN Proper Shipping Name: AMINES, LIQUID, CORROSIV, N.O.S. (POLYOXYPROPYLENEDIAMINE)
Hazard Class: 8
Packing Group III
Placard: Corrosive
IMDG: UN/NA # 2735
UN Proper Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (POLYOXYPROPYLENEDIAMINE)
Hazard Class: 8
Placard: Corrosive
Marine Pollutant: No data available
IATA: UN/NA # 2735
UN Proper Shipping Name: AMINES, LIQUID, CORROSIV, N.O.S. (POLYOXYPROPYLENEDIAMINE)
Hazard Class: 8
Packing Group III
Placard: Corrosive

Section 15: Regulatory Information

Polyoxypropyenediamine (9046-10-0, 21-37% by weight): DSL, TSCA
Aromatic Amine (68479-98-1, 4-8% by weight): DSL, SARA312, VOC, TSCA
Dipropylene Glycol (25265-71-8, 2-4% by weight): DSL, SARA312, VOC, TSCA
1,4-Diazobicyclo (2,2,2) Octane (280-57-0, 1.202% by weight): DSL, SARA312, TSCA
Silica, crystalline (14808-60-7, 0.9-1.4% by weight): DSL, SARA312, TSCA, California Proposition 65
Carbon Black (1333-86-4, 0.1-1% by weight): DSL, SARA312, TSCA, California Proposition 65

Section 16: Other Information

Preparation Date: August 1, 2019

Disclaimer: The data set forth in this sheet is based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. ArmorThane makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof.

ArmorThane USA Inc. and/or ArmorThane Coatings Inc. make no representations or warranties as to the results of the use of the products and assume no obligation in connection therewith. Any written, oral, testing, or technical application advice is to the best of ArmorThane's knowledge and believed to be correct. It is to be considered only an indication without obligation. Customer is reminded that he must satisfy himself that the product supplied by ArmorThane is suitable for his purpose and conditions of use. Application, uses, and transformation of the products which are beyond our control, are the exclusive responsibility of the customer/applicator. Liability of ArmorThane for all claims, whether arising out of breach of warranty, negligence, strict liability, or otherwise, is limited to the purchase price of the material only.

User's Responsibility: A bulletin as this cannot be expected to cover all possible individual situations. As the user has the responsibility to provide a safe workplace, all aspects of an individual operation should be examined to determine if, or where, precautions, in addition to those described herein, are required. Any health hazard and safety information herein should be passed on to your customers and employees, as the case may be.

For Your Protection: ArmorThane warrants only that its products meet the specification stated in the sales contract. Typical properties, where stated, are to be considered as representative of current production and should not be treated as specifications. While all the information presented in this document is believed to be reliable and to represent the best available data on these products, no guaranty, warranty, or representation is made, intended, or implied as to the correctness, or sufficiency of any information, or as to the merchantability or suitability or fitness or any chemical compounds or other products for any particular use or purpose, or that any chemical compounds or other compounds or the use thereof are not subject to a claim by a third party for infringement of any patent or other intellectual property right. The user should conduct sufficient investigation to establish the suitability of any product for its intended use. Liability of ArmorThane for all claims, whether arising out of breach of warranty, negligence, strict liability, or otherwise, is limited to the purchase price of the material. Products may be toxic and require special precautions in handling. For all products listed, the user should obtain detailed information on toxicity, together with proper shipping, handling, and storage procedures, and comply with all applicable safety and environmental standards. Toxicity and risk characteristics of chemical compounds and other products may differ when used with other materials or in a manufacturing or other process. Those risk characteristics should be determined by the user and made known to handlers, processors, and end users.