

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: 2919 Desmodur

Product Code: 2919

1.2. Intended Use of the Product

No use is specified.

1.3. Name, Address, and Telephone of the Responsible Party

Company

TW Graphics Group

3323 S. Malt Avenue

Commerce, CA 90040

323-721-1400 or 800-734-1704

twgraphics.com

1.4. Emergency Telephone Number

Emergency Number : 800-424-9300

For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

Flam. Liq. 3 H226

Acute Tox. 4 (Inhalation:dust,mist) H332

Resp. Sens. 1 H334

Skin Sens. 1 H317

Repr. 1B H360

STOT SE 3 H335

Full text of hazard classes and H-statements : see section 16

2.2. Label Elements

GHS-US/CA Labeling

Hazard Pictograms (GHS-US/CA)



Signal Word (GHS-US/CA)

: Danger

Hazard Statements (GHS-US/CA)

: H226 - Flammable liquid and vapor.
 H317 - May cause an allergic skin reaction.
 H332 - Harmful if inhaled.
 H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 - May cause respiratory irritation.
 H360 - May damage fertility or the unborn child.

Precautionary Statements (GHS-US/CA)

: P201 - Obtain special instructions before use.
 P202 - Do not handle until all safety precautions have been read and understood.
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P233 - Keep container tightly closed.
 P240 - Ground/bond container and receiving equipment.
 P241 - Use explosion-proof electrical, ventilating, and lighting equipment.
 P242 - Use only non-sparking tools.
 P243 - Take action to prevent static discharges.

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P261 - Avoid breathing vapors, mist, or spray.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves, protective clothing, and eye protection.
P284 - [In case of inadequate ventilation] wear respiratory protection.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P312 - Call a POISON CENTER or doctor if you feel unwell.
P321 - Specific treatment (see section 4 on this SDS).
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P370+P378 - In case of fire: Use appropriate media (see section 5) to extinguish.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. This product contains residual diisocyanate monomers at $\leq 0.525\%$ w/w, if stored at temperatures near the upper end of the recommended storage temperature range, the HDI monomer content may rise to a maximum of 0.75% w/w. A small polymerization reaction of the leftover monomer is possible if the product is heated, or contact with incompatible materials occurs. Uninhibited monomer vapors may cause a blockage in venting. Proper precautions should be followed.

2.4. Unknown Acute Toxicity (GHS-US/CA)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Product Identifier	% *	GHS Ingredient Classification
Hexamethylene diisocyanate homopolymer	(CAS-No.) 28182-81-2	71.25 - 75	Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Sens. 1, H317 STOT SE 3, H335
Propylene glycol monomethyl ether acetate	(CAS-No.) 108-65-6	20.7 - 23	Flam. Liq. 3, H226
Calcium oxide**	(CAS-No.) 1305-78-8	0.2 - 0.6	HHNOC 1 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 3, H402
Sodium oxide (Na ₂ O)**	(CAS-No.) 1313-59-3	0.2 - 0.6	PHNOC 1 Skin Corr. 1B, H314 Eye Dam. 1, H318
Aluminum oxide (Al ₂ O ₃)**	(CAS-No.) 1344-28-1	0.2 - 0.6	Not classified
Potassium oxide**	(CAS-No.) 12136-45-7	0.2 - 0.6	Skin Corr. 1A, H314 Eye Dam. 1, H318
Silica, amorphous**	(CAS-No.) 7631-86-9	0.2 - 0.6	Not classified
Hexamethylene diisocyanate	(CAS-No.) 822-06-0	≤ 0.525	HHNOC 1 PHNOC 1 Acute Tox. 4 (Oral), H302 Acute Tox. 1 (Inhalation:vapor), H330

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			Skin Corr. 1C, H314 Eye Dam. 1, H318 Resp. Sens. 1, H334 Skin Sens. 1, H317 Aquatic Acute 3, H402
2-Methoxypropyl-1-acetate	(CAS-No.) 70657-70-4	0.023 - 0.23	Flam. Liq. 3, H226 Repr. 1B, H360 STOT SE 3, H335

Full text of H-phrases: see section 16

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

** These components are derived from synthetic zeolite/molecular sieves. The hazards of the individual molecular components are not representative of zeolite as a whole.

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: May cause respiratory irritation. Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Skin sensitization. May damage fertility. May damage the unborn child.

Inhalation: Irritation of the respiratory tract and the other mucous membranes. Inhalation is likely to cause adverse health effects including but not limited to: irritation, difficulty breathing, and unconsciousness. Exposure may produce cough, mucous secretions, shortness of breath, chest tightness or other symptoms indicative of an allergic/sensitization reaction. This product contains diisocyanates and can induce what is known as isocyanate asthma from both acute and/or chronic exposure. Sensitization to this product may lead to cross sensitization to other isocyanate compounds. If sensitization symptoms are present, exposure to other isocyanate compounds and products containing isocyanates should not be allowed.

Skin Contact: May cause an allergic skin reaction. Sensitization to this product may lead to cross sensitization to other isocyanate compounds. If sensitization symptoms are present, exposure to other isocyanate compounds and products containing isocyanates should not be allowed.

Eye Contact: May cause slight irritation to eyes.

Ingestion: Ingestion may cause adverse effects. May cause irritation of the gastrointestinal tract.

Chronic Symptoms: May damage fertility or the unborn child. Chronic Inhalation: as a result of previous repeated overexposures, or single large dose, certain individuals develop symptoms to isocyanates at levels below TLV. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath, or asthma attack could be immediate or delayed up to several hours after exposure, similar to many non-specific asthmatic responses. There are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Overexposure to isocyanates has also been reported to cause lung damage, including decrease in lung function, which may be permanent. Sensitization can either be temporary or permanent.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂). Water may be ineffective but water should be used to keep fire-exposed container cool.

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Unsuitable Extinguishing Media: Do not use a heavy water stream. A heavy water stream may spread burning liquid.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Flammable liquid and vapor.

Explosion Hazard: May form flammable or explosive vapor-air mixture. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Reactivity: Reacts violently with strong oxidizers. Increased risk of fire or explosion. Isocyanates and diisocyanates are incompatible with many classes of compounds, reacting exothermically to release toxic gases. Reactions with amines, aldehydes, alcohols, alkali metals, ketones, mercaptans, strong oxidizers, hydrides, phenols, and peroxides can cause vigorous releases of heat. Acids and bases initiate polymerization reactions in these materials. Some isocyanates react with water to form amines and liberate carbon dioxide. Polyurethanes are formed by the condensation reaction of diisocyanates with, for example, ethylene glycol.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Remove containers from fire area if this can be done without risk. Use water spray or fog for cooling exposed containers. Do not get water inside containers. Do not apply water stream directly at source of leak. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. Do not allow run-off from firefighting to enter drains or water sources.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Nitrogen oxides. Hydrogen cyanide. Isocyanic acid. Isocyanates. Acrid smoke and irritating fumes. Toxic fumes may be released.

Other Information: Vapors are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapors.

Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Use special care to avoid static electric charges.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel. Stop leak if safe to do so.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Eliminate ignition sources. Evacuate unnecessary personnel, isolate, and ventilate area. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions. Ventilate area.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Cautiously neutralize spilled liquid. Absorb and/or contain spill with inert material. Do not take up in combustible material such as: saw dust or cellulosic material. Use clean non-sparking tools to collect material and place it into loosely covered metal containers for later disposal. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

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SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Handle empty containers with care because residual vapors are flammable. Do not breathe vapors, mists, or spray. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash thoroughly after handling. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating.

Precautions for Safe Handling: Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Take precautionary measures against static discharge. Use only non-sparking tools. Use only outdoors or in a well-ventilated area. Do not breathe mist, spray, vapors, and fume. Avoid contact with skin, eyes and clothing. Sensitization to this product may lead to cross sensitization to other isocyanate compounds. If sensitization symptoms are present, exposure to other isocyanate compounds and products containing isocyanates should not be allowed. Use appropriate personal protective equipment (PPE).

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Take action to prevent static discharges. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container tightly closed. Containers which are opened should be properly resealed and kept upright to prevent leakage. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Keep in fireproof place. Store locked up/in a secure area.

Incompatible Materials: Strong acids, strong bases, strong oxidizers. Isocyanates and diisocyanates are incompatible with many classes of compounds, reacting exothermically to release toxic gases. Reactions with amines, aldehydes, alcohols, alkali metals, ketones, mercaptans, strong oxidizers, hydrides, phenols, and peroxides can cause vigorous releases of heat. Acids and bases initiate polymerization reactions in these materials. Some isocyanates react with water to form amines and liberate carbon dioxide.

Maximum Storage Period: ≈ 6 months at 25 °C (77 °F)

7.3. Specific End Use(s)

No use is specified.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Hexamethylene diisocyanate (822-06-0)		
USA ACGIH	ACGIH TWA (ppm)	0.005 ppm
USA ACGIH	Biological Exposure Indices (BEI)	15 µg/g Kreatinin Parameter: 1,6-Hexamethylenediamine with hydrolysis - Medium: urine - Sampling time: end of shift (nonspecific)
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	0.035 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	0.005 ppm
USA NIOSH	NIOSH REL (ceiling) (mg/m ³)	0.14 mg/m ³
USA NIOSH	NIOSH REL (ceiling) (ppm)	0.02 ppm
Alberta	OEL TWA (mg/m ³)	0.03 mg/m ³
Alberta	OEL TWA (ppm)	0.005 ppm
British Columbia	OEL Ceiling (ppm)	0.01 ppm
British Columbia	OEL TWA (ppm)	0.005 ppm
Manitoba	OEL TWA (ppm)	0.005 ppm

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New Brunswick	OEL TWA (mg/m ³)	0.034 mg/m ³
New Brunswick	OEL TWA (ppm)	0.005 ppm
Newfoundland & Labrador	OEL TWA (ppm)	0.005 ppm
Nova Scotia	OEL TWA (ppm)	0.005 ppm
Nunavut	OEL STEL (ppm)	0.015 ppm
Nunavut	OEL TWA (ppm)	0.005 ppm
Northwest Territories	OEL STEL (ppm)	0.015 ppm
Northwest Territories	OEL TWA (ppm)	0.005 ppm
Ontario	OEL Ceiling (ppm)	0.02 ppm (designated substances regulation)
Ontario	OEL TWA (ppm)	0.005 ppm (designated substances regulation) 0.005 ppm (applies to workplaces to which the designated substances regulation does not apply)
Prince Edward Island	OEL TWA (ppm)	0.005 ppm
Québec	VEMP (mg/m ³)	0.034 mg/m ³
Québec	VEMP (ppm)	0.005 ppm
Saskatchewan	OEL STEL (ppm)	0.015 ppm
Saskatchewan	OEL TWA (ppm)	0.005 ppm
Calcium oxide (1305-78-8)		
Mexico	OEL TWA (mg/m ³)	2 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	2 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	2 mg/m ³
USA IDLH	US IDLH (mg/m ³)	25 mg/m ³
Alberta	OEL TWA (mg/m ³)	2 mg/m ³
British Columbia	OEL TWA (mg/m ³)	2 mg/m ³
Manitoba	OEL TWA (mg/m ³)	2 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	2 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	2 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	2 mg/m ³
Nunavut	OEL STEL (mg/m ³)	4 mg/m ³
Nunavut	OEL TWA (mg/m ³)	2 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	4 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	2 mg/m ³
Ontario	OEL TWA (mg/m ³)	2 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	2 mg/m ³
Québec	VEMP (mg/m ³)	2 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	4 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	2 mg/m ³
Yukon	OEL STEL (mg/m ³)	4 mg/m ³
Yukon	OEL TWA (mg/m ³)	2 mg/m ³
Aluminum oxide (Al₂O₃) (1344-28-1)		
Mexico	OEL TWA (mg/m ³)	10 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)
Alberta	OEL TWA (mg/m ³)	10 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	10 mg/m ³ (particulate matter containing no Asbestos and <1% Crystalline silica)
Nunavut	OEL STEL (mg/m ³)	20 mg/m ³
Nunavut	OEL TWA (mg/m ³)	10 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	20 mg/m ³

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Northwest Territories	OEL TWA (mg/m ³)	10 mg/m ³
Québec	VEMP (mg/m ³)	10 mg/m ³ (containing no Asbestos and <1% Crystalline silica-total dust)
Saskatchewan	OEL STEL (mg/m ³)	20 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	10 mg/m ³
Yukon	OEL STEL (mg/m ³)	20 mg/m ³ (Al ₂ O ₃)
Yukon	OEL TWA (mg/m ³)	30 mppcf (Al ₂ O ₃) 10 mg/m ³ (Al ₂ O ₃)
Silica, amorphous (7631-86-9)		
USA OSHA	OSHA PEL (TWA) (mg/m ³)	6 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	20 mppcf (80mg/m ³ /%SiO ₂)
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	6 mg/m ³
USA IDLH	US IDLH (mg/m ³)	3000 mg/m ³
Yukon	OEL TWA (mg/m ³)	300 particle/mL (as measured by Konimeter instrumentation) 20 mppcf (as measured by Impinger instrumentation) 2 mg/m ³ (respirable mass)
Propylene glycol monomethyl ether acetate (108-65-6)		
USA AIHA	WEEL TWA (ppm)	50 ppm
British Columbia	OEL STEL (ppm)	75 ppm
British Columbia	OEL TWA (ppm)	50 ppm
Ontario	OEL TWA (mg/m ³)	270 mg/m ³
Ontario	OEL TWA (ppm)	50 ppm
2-Methoxypropyl-1-acetate (70657-70-4)		
British Columbia	OEL STEL (ppm)	40 ppm
British Columbia	OEL TWA (ppm)	20 ppm

8.2. Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Provide sufficient ventilation to keep vapors below permissible exposure limit. Gas detectors should be used when toxic gases may be released. Gas detectors should be used when flammable gases or vapors may be released. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Chemically resistant materials and fabrics. Wear fire/flammable resistant/retardant clothing.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Environmental Exposure Controls: Avoid release to the environment.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	: Liquid
Appearance	: Not available
Odor	: Not available

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Odor Threshold	: Not available
pH	: Not available
Evaporation Rate	: Not available
Melting Point	: Not available
Freezing Point	: Not available
Boiling Point	: Not available
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not applicable
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20°C	: Not available
Relative Density	: Not available
Specific Gravity	: Not available
Solubility	: Not available
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available
VOC content	: 20 - 23 %

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: Reacts violently with strong oxidizers. Increased risk of fire or explosion. Isocyanates and diisocyanates are incompatible with many classes of compounds, reacting exothermically to release toxic gases. Reactions with amines, aldehydes, alcohols, alkali metals, ketones, mercaptans, strong oxidizers, hydrides, phenols, and peroxides can cause vigorous releases of heat. Acids and bases initiate polymerization reactions in these materials. Some isocyanates react with water to form amines and liberate carbon dioxide. Polyurethanes are formed by the condensation reaction of diisocyanates with, for example, ethylene glycol.

10.2. Chemical Stability: Flammable liquid and vapor. May form flammable or explosive vapor-air mixture.

10.3. Possibility of Hazardous Reactions: May occur, contact with moisture and other materials, which react with isocyanates, or temperatures about 350 °F, may cause some polymerization. In the presence of air/oxygen, this product may form peroxides.

10.4. Conditions to Avoid: Direct sunlight, extremely high or low temperatures, heat, hot surfaces, sparks, open flames, incompatible materials, and other ignition sources.

10.5. Incompatible Materials: Strong acids, strong bases, strong oxidizers. Isocyanates and diisocyanates are incompatible with many classes of compounds, reacting exothermically to release toxic gases. Reactions with amines, aldehydes, alcohols, alkali metals, ketones, mercaptans, strong oxidizers, hydrides, phenols, and peroxides can cause vigorous releases of heat. Acids and bases initiate polymerization reactions in these materials. Some isocyanates react with water to form amines and liberate carbon dioxide.

10.6. Hazardous Decomposition Products: Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition generates: Carbon oxides (CO, CO₂). Nitrogen oxides. Isocyanates.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Inhalation:dust,mist: Harmful if inhaled.

LD50 and LC50 Data:

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ATE US/CA (dust, mist)	4.89 mg/l/4h

Skin Corrosion/Irritation: Not classified

Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: May cause an allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Germ Cell Mutagenicity: Not classified

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Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: May damage fertility or the unborn child.

Specific Target Organ Toxicity (Single Exposure): May cause respiratory irritation.

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Irritation of the respiratory tract and the other mucous membranes. Inhalation is likely to cause adverse health effects including but not limited to: irritation, difficulty breathing, and unconsciousness. Exposure may produce cough, mucous secretions, shortness of breath, chest tightness or other symptoms indicative of an allergic/sensitization reaction. This product contains diisocyanates and can induce what is known as isocyanate asthma from both acute and/or chronic exposure. Sensitization to this product may lead to cross sensitization to other isocyanate compounds. If sensitization symptoms are present, exposure to other isocyanate compounds and products containing isocyanates should not be allowed.

Symptoms/Injuries After Skin Contact: May cause an allergic skin reaction. Sensitization to this product may lead to cross sensitization to other isocyanate compounds. If sensitization symptoms are present, exposure to other isocyanate compounds and products containing isocyanates should not be allowed.

Symptoms/Injuries After Eye Contact: May cause slight irritation to eyes.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects. May cause irritation of the gastrointestinal tract.

Chronic Symptoms: May damage fertility or the unborn child. Chronic Inhalation: as a result of previous repeated overexposures, or single large dose, certain individuals develop symptoms to isocyanates at levels below TLV. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath, or asthma attack could be immediate or delayed up to several hours after exposure, similar to many non-specific asthmatic responses. There are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Overexposure to isocyanates has also been reported to cause lung damage, including decrease in lung function, which may be permanent. Sensitization can either be temporary or permanent.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Hexamethylene diisocyanate homopolymer (28182-81-2)	
LC50 Inhalation Rat	18500 mg/m ³ (Exposure time: 1 h)
LC50 Inhalation Rat	4.625 mg/l/4h
Hexamethylene diisocyanate (822-06-0)	
LD50 Oral Rat	959 mg/kg
LD50 Dermal Rat	> 7000 mg/kg
LC50 Inhalation Rat	0.124 mg/l/4h
LC50 Inhalation Rat	0.06 mg/l/4h
ATE US/CA (dust, mist)	0.12 mg/l/4h
Calcium oxide (1305-78-8)	
LD50 Oral Rat	> 2000 mg/kg
LD50 Dermal Rabbit	> 2500 mg/kg
Aluminum oxide (Al₂O₃) (1344-28-1)	
LD50 Oral Rat	> 15900 mg/kg
LC50 Inhalation Rat	> 2.3 mg/l/4h
Silica, amorphous (7631-86-9)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg
Propylene glycol monomethyl ether acetate (108-65-6)	
LD50 Oral Rat	8532 mg/kg
LD50 Dermal Rabbit	> 5 g/kg
Silica, amorphous (7631-86-9)	
IARC Group	3

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: Not classified.

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According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

Hexamethylene diisocyanate (822-06-0)	
LC50 Fish 1	26.1 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
ErC50 (algae)	89.1 mg/l
Calcium oxide (1305-78-8)	
LC50 Fish 1	50.6 mg/l
Aluminum oxide (Al2O3) (1344-28-1)	
LC50 Fish 1	> 100 mg/l
EC50 Daphnia 1	> 100 mg/l
ErC50 (algae)	> 100 mg/l
NOEC (Acute)	> 50 mg/l
Silica, amorphous (7631-86-9)	
LC50 Fish 1	5000 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
EC50 Daphnia 1	7600 mg/l (Exposure time: 48 h - Species: Ceriodaphnia dubia)
Propylene glycol monomethyl ether acetate (108-65-6)	
LC50 Fish 1	161 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Daphnia 1	> 500 mg/l (Exposure time: 48 h - Species: Daphnia magna)

12.2. Persistence and Degradability

2919 Desmodur	
Persistence and Degradability	Not established.

12.3. Bioaccumulative Potential

2919 Desmodur	
Bioaccumulative Potential	Not established.
Calcium oxide (1305-78-8)	
BCF Fish 1	(no bioaccumulation)
Silica, amorphous (7631-86-9)	
BCF Fish 1	(no bioaccumulation expected)
Propylene glycol monomethyl ether acetate (108-65-6)	
Log Pow	0.43

12.4. Mobility in Soil Not available

12.5. Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Additional Information: Handle empty containers with care because residual vapors are flammable.

Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1. In Accordance with DOT

Proper Shipping Name : ETHERS, N.O.S. (Propylene glycol monomethyl ether acetate mixture)
Hazard Class : 3
Identification Number : UN3271
Label Codes : 3
Packing Group : III
ERG Number : 127



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According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

14.2. In Accordance with IMDG

Proper Shipping Name : ETHERS, N.O.S. (Propylene glycol monomethyl ether acetate mixture)
Hazard Class : 3
Identification Number : UN3271
Label Codes : 3
Packing Group : III
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-D



14.3. In Accordance with IATA

Proper Shipping Name : ETHERS, N.O.S. (Propylene glycol monomethyl ether acetate mixture)
Identification Number : 3
Hazard Class : UN3271
Label Codes : 3
Packing Group : III
ERG Code (IATA) : 3L



14.4. In Accordance with TDG

Proper Shipping Name : ETHERS, N.O.S. (Propylene glycol monomethyl ether acetate mixture)
Hazard Class : 3
Identification Number : UN3271
Label Codes : 3
Packing Group : III



SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

2919 Desmodur	
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
Hexamethylene diisocyanate homopolymer (28182-81-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	XU - XU - indicates a substance exempt from reporting under the Inventory Update Reporting Rule, i.e, Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(C)).
Hexamethylene diisocyanate (822-06-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	100 lb
SARA Section 313 - Emission Reporting	1 %
Calcium oxide (1305-78-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Sodium oxide (Na2O) (1313-59-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Aluminum oxide (Al2O3) (1344-28-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
SARA Section 313 - Emission Reporting	1 % (fibrous forms)
Potassium oxide (12136-45-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Silica, amorphous (7631-86-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Propylene glycol monomethyl ether acetate (108-65-6)	

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Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	P - P - indicates a commenced PMN substance.

15.2. US State Regulations

Hexamethylene diisocyanate (822-06-0)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List
Calcium oxide (1305-78-8)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
Aluminum oxide (Al₂O₃) (1344-28-1)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List
Potassium oxide (12136-45-7)
U.S. - New Jersey - Right to Know Hazardous Substance List
Silica, amorphous (7631-86-9)
U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List

15.3. Canadian Regulations

Hexamethylene diisocyanate homopolymer (28182-81-2)
Listed on the Canadian DSL (Domestic Substances List)
Hexamethylene diisocyanate (822-06-0)
Listed on the Canadian DSL (Domestic Substances List)
Calcium oxide (1305-78-8)
Listed on the Canadian DSL (Domestic Substances List)
Sodium oxide (Na₂O) (1313-59-3)
Listed on the Canadian DSL (Domestic Substances List)
Aluminum oxide (Al₂O₃) (1344-28-1)
Listed on the Canadian DSL (Domestic Substances List)
Potassium oxide (12136-45-7)
Listed on the Canadian DSL (Domestic Substances List)
Silica, amorphous (7631-86-9)
Listed on the Canadian DSL (Domestic Substances List)
Propylene glycol monomethyl ether acetate (108-65-6)
Listed on the Canadian DSL (Domestic Substances List)
2-Methoxypropyl-1-acetate (70657-70-4)
Listed on the Canadian DSL (Domestic Substances List)

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision : 12/11/2017

Other Information

: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

GHS Full Text Phrases:

Acute Tox. 1 (Inhalation:vapor)	Acute toxicity (inhalation:vapor) Category 1
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4

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Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Flam. Liq. 3	Flammable liquids Category 3
HHNOC 1	Health hazard not otherwise classified, category 1
PHNOC 1	Physical hazard not otherwise classified, category 1
Repr. 1B	Reproductive toxicity Category 1B
Resp. Sens. 1	Respiratory sensitization, Category 1
Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Corr. 1C	Skin corrosion/irritation Category 1C
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization, Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H226	Flammable liquid and vapor
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H330	Fatal if inhaled
H332	Harmful if inhaled
H334	May cause an allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H360	May damage fertility or the unborn child
H402	Harmful to aquatic life

HMIS III Rating

Health

: 2 Moderate Hazard - Temporary or minor injury may occur
* Chronic - Chronic (long-term) health effects may result from repeated overexposure

Flammability

: 2 Moderate Hazard

Physical

: 1 Slight Hazard

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