SAFETY DATA SHEET
DOW CHEMICAL CANADA ULC

Product name: Dow Brake Fluid 310

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DOW CHEMICAL CANADA ULC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: Dow Brake Fluid 310

Recommended use of the chemical and restrictions on use
Identified uses: A brake fluid - For use in automotive applications.

COMPANY IDENTIFICATION
DOW CHEMICAL CANADA ULC
#2400, 215 - 2ND STREET S.W.
CALGARY AB T2P 1M4
CANADA

Customer Information Number: 800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 1-888-226-8832
Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Hazard classification
This product is hazardous under the criteria of the Hazardous Products Regulation (HPR) as implemented under the Workplace Hazardous Materials Information System (WHMIS 2015).
Reproductive toxicity - Category 2
Specific target organ toxicity - repeated exposure - Category 2 - Oral

Label elements
Hazard pictograms

Signal word: **WARNING!**

Hazards
Suspected of damaging fertility or the unborn child.
May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

Precautionary statements

Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response
IF exposed or concerned: Get medical advice/ attention.

Storage
Store locked up.

Disposal
Dispose of contents/ container to an approved waste disposal plant.

Other hazards
No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Polyglycol
This product is a mixture.

Component	CASRN	Concentration
Polyethylene glycol monomethyl ether	9004-74-4	> 5.0 - < 50.0 %
Triethylene glycol monoethyl ether	112-50-5	> 15.0 - < 40.0 %
Triethylene glycol monobutyl ether	143-22-6	> 1.0 - < 30.0 %
Triethylene glycol monomethyl ether	112-35-6	> 1.0 - < 30.0 %
Pentaethylene glycol	4792-15-8	< 30.0 %
Tetraethylene Glycol	112-60-7	> 1.0 - < 25.0 %
Polyethylene glycol monobutyl ether	9004-77-7	> 1.0 - < 20.0 %

Triethylene glycol	112-27-6	> 1.0 - < 20.0 %
Diethylene glycol monobutyl ether	112-34-5	< 10.0 %
Diethylene glycol	111-46-6	< 5.0 %
Tetraethylene glycol monoethyl ether	5650-20-4	< 5.0 %
Polyethylene glycol	25322-68-3	< 5.0 %
Diisopropanolamine	110-97-4	< 3.0 %
Diethylene glycol monomethyl ether	111-77-3	< 1.0 %
Di-t-butyl-p-cresol	128-37-0	< 1.0 %
Sodium hydroxide	1310-73-2	< 1.0 %

4. FIRST AID MEASURES

Description of first aid measures
General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin contact: Wash off with plenty of water.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: Do not induce vomiting. Seek medical attention immediately. If person is fully conscious give 1 cup or 8 ounces (240 ml) of water. If medical advice is delayed and if an adult has swallowed several ounces of chemical, then give 3-4 ounces (1/3-1/2 Cup) (90-120 ml) of hard liquor such as 80 proof whiskey. For children, give proportionally less liquor at a dose of 0.3 ounce (1 1/2 tsp.) (8 ml) liquor for each 10 pounds of body weight, or 2 ml per kg body weight [e.g., 1.2 ounce (2 1/3 tbsp.) for a 40 pound child or 36 ml for an 18 kg child].

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Due to structural analogy and clinical data, this material may have a mechanism of intoxication similar to ethylene glycol. On that basis, treatment similar to ethylene glycol intoxication may be of benefit. In cases where several ounces (60 - 100 ml) have been ingested, consider the use of ethanol and hemodialysis in the treatment. Consult standard literature for details of treatment. If ethanol is used, a therapeutically effective blood concentration in the range of 100 - 150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol®) is an effective blocker of alcohol dehydrogenase and should be used in the treatment of ethylene glycol (EG), di- or triethylene glycol (DEG, TEG), ethylene glycol butyl ether (EGBE), or methanol intoxication if available. Fomepizole protocol (Brent, J. et al., New England Journal of Medicine, Feb. 8, 2001, 344:6, p. 424-9): loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizole until serum methanol, EG, DEG, TEG or EGBE are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. In severe poisoning, respiratory support with mechanical ventilation and positive end expiratory pressure may be required. Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture
Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide. Combustion products may include trace amounts of: Nitrogen oxides.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Spills or discharge to natural waterways is likely to kill aquatic organisms. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Small spills: Absorb with materials such as: Sand. Vermiculite. Collect in suitable and properly labeled containers. Large spills: Contain spilled material if possible. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not swallow. Avoid contact with eyes. Wash thoroughly after handling. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in the following material(s): Carbon steel. Stainless steel. Phenolic lined steel drums. Do not store in: Aluminum. Copper. Galvanized iron. Galvanized steel.

Storage stability

Storage temperature:

5 - 35 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Triethylene glycol	Dow IHG	TWA Total	100 mg/m3
Diethylene glycol monobutyl ether	ACGIH	TWA Inhalable fraction and vapor	10 ppm
	Dow IHG	TWA	35 ppm
Diethylene glycol	US WEEL	TWA	10 mg/m3
Polyethylene glycol	US WEEL	TWA aerosol	10 mg/m3
Diisopropanolamine	Dow IHG	TWA	10 ppm
Diethylene glycol monomethyl ether	Dow IHG	TWA	10 ppm
	Dow IHG	TWA	SKIN
Di-t-butyl-p-cresol	ACGIH	TWA Inhalable fraction and vapor	2 mg/m3
	CA AB OEL	TWA	10 mg/m3

	CA BC OEL	TWA Inhalable vapour and aerosols	2 mg/m3
	CA QC OEL	TWAEV	10 mg/m3
Sodium hydroxide	ACGIH	C	2 mg/m3
	CA AB OEL	(c)	2 mg/m3
	CA BC OEL	C	2 mg/m3
	CA QC OEL	C	2 mg/m3

Consult local authorities for recommended exposure limits.

Although some of the components of this product may have exposure guidelines, no exposure would be expected under normal handling conditions due to the physical state of the material.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields).

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Wear clean, body-covering clothing.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Liquid.
Color	Colorless to yellow
Odor	Ether
Odor Threshold	No test data available
pH	No test data available

Melting point/range	No test data available
Freezing point	-51 °C *Estimated.*
Boiling point (760 mmHg)	260 °C *ASTM E1719*
Flash point	**closed cup** 138 °C *Pensky-Martens Closed Cup ASTM D 93*
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	No
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	<0.010 mmHg at 20 °C *Estimated.*
Relative Vapor Density (air = 1)	6 at 20 °C *Estimated.*
Relative Density (water = 1)	1.04 at 20 °C *ASTM D1475*
Water solubility	100 % at 20 °C *Estimated.*
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Kinematic Viscosity	990 cSt at -40 °C *ISO 3104*
Explosive properties	No test data available
Oxidizing properties	No test data available
Molecular weight	No data available
Molecular formula	Not applicable (mixture)
Volatile Organic Compounds	No test data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Do not distill to dryness. Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Ketones. Organic acids. Decomposition products can include trace amounts of: Nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity
Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. May cause nausea and vomiting. May cause abdominal discomfort or diarrhea. May cause dizziness and drowsiness. Oral toxicity is expected to be greater in humans due to triethylene glycol even though tests in animals show a lower degree of toxicity. Oral toxicity is expected to be moderate in humans due to diethylene glycol even though tests with animals show a lower degree of toxicity.
As product: Single dose oral LD50 has not been determined.

Acute dermal toxicity
Prolonged skin contact is unlikely to result in absorption of harmful amounts.
As product: The dermal LD50 has not been determined.

Acute inhalation toxicity
At room temperature, exposure to vapor is minimal due to low volatility. Mist may cause irritation of upper respiratory tract (nose and throat).
As product: The LC50 has not been determined.

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation
May cause slight eye irritation.

Sensitization
No relevant data found.

For respiratory sensitization:
No relevant information found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Based on information for component(s):
In humans, effects have been reported on the following organs:
Kidney.
Gastrointestinal tract.
In humans, symptoms may include:
Headache.
Nausea and/or vomiting.
In animals, effects have been reported on the following organs:
Liver.
Respiratory tract.
Blood.

Carcinogenicity
Diethylene glycol has been tested for carcinogenicity in animal studies and is not believed to pose a carcinogenic risk to man. Contains component(s) which did not cause cancer in laboratory animals.

Teratogenicity
Triethylene glycol did not cause birth defects in animals; delayed developmental effects occurred only at high doses which were toxic to the mother. Diethylene glycol has caused toxicity to the fetus and some birth defects at maternally toxic, high doses in animals. Other animal studies have not reproduced birth defects even at much higher doses that caused severe maternal toxicity. In animals, diethylene glycol methyl ether is slightly toxic to the fetus at doses nontoxic to the mother following skin contact; birth defects have been seen only following high oral doses which have little relevance to human exposure.

Reproductive toxicity
Diethylene glycol did not interfere with reproduction in animal studies except at very high doses. Based on information for component(s): In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring.

Mutagenicity
Contains a component(s) which were negative in in vitro genetic toxicity studies. Contains component(s) which were negative in animal genetic toxicity studies.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

COMPONENTS INFLUENCING TOXICOLOGY:

Polyethylene glycol monomethyl ether

Acute oral toxicity
Typical for this family of materials. LD50, Rat, > 4,000 mg/kg Estimated. No deaths occurred at this concentration.

Acute dermal toxicity
Typical for this family of materials. LD50, Rabbit, > 17,460 mg/kg Estimated.

Acute inhalation toxicity
The LC50 has not been determined.

Triethylene glycol monoethyl ether

Acute oral toxicity
LD50, Rat, male, 10,610 mg/kg

Acute dermal toxicity
LD50, Rabbit, 8,200 mg/kg

Acute inhalation toxicity
LC50, Rat, 1 Hour, Vapour, > 200 mg/l No deaths occurred at this concentration.

Triethylene glycol monobutyl ether

Acute oral toxicity
LD50, Rat, 5,170 mg/kg

Acute dermal toxicity

LD50, Rabbit, 3,540 mg/kg

Acute inhalation toxicity
As product: The LC50 has not been determined.

Triethylene glycol monomethyl ether

Acute oral toxicity
LD50, Rat, 10,500 mg/kg

Acute dermal toxicity
LD50, Rabbit, 7,100 mg/kg

Acute inhalation toxicity
Rat, 8 Hour, vapour, No deaths occurred following exposure to a saturated atmosphere.

Pentaethylene glycol

Acute oral toxicity
LD50, Guinea pig, 22,500 mg/kg

For similar material(s): Estimated. LD50, Rat, 30,000 mg/kg

Acute dermal toxicity
For similar material(s): LD50, Rabbit, 22,600 mg/kg

Acute inhalation toxicity
For similar material(s): No deaths occurred following exposure to a saturated atmosphere.

Tetraethylene Glycol

Acute oral toxicity
LD50, Rat, 30,000 mg/kg Estimated.

Acute dermal toxicity
LD50, Rabbit, 22,600 mg/kg

Acute inhalation toxicity
No deaths occurred following exposure to a saturated atmosphere.

Polyethylene glycol monobutyl ether

Acute oral toxicity
Single dose oral LD50 has not been determined.

Based on information for a similar material: May cause nausea and vomiting. May cause abdominal discomfort or diarrhea. May cause dizziness and drowsiness. LD50, Rat, 2,630 mg/kg

Acute dermal toxicity
The dermal LD50 has not been determined.

Based on information for a similar material: LD50, Rabbit, 3,540 mg/kg

Acute inhalation toxicity
As product: The LC50 has not been determined.

Triethylene glycol

Acute oral toxicity
Oral toxicity is expected to be greater in humans due to triethylene glycol even though tests in animals show a lower degree of toxicity. May cause nausea and vomiting. May cause abdominal discomfort or diarrhea. May cause dizziness and drowsiness. LD50, Rat, male and female, > 2,000 mg/kg

Acute dermal toxicity
LD50, Rabbit, > 18,016 mg/kg

Acute inhalation toxicity
LC50, Rat, male and female, 4 Hour, dust/mist, > 5.2 mg/l No deaths occurred at this concentration.

Maximum attainable concentration. LC50, Rat, 4 Hour, dust/mist, > 4.5 mg/l No deaths occurred at this concentration.

Diethylene glycol monobutyl ether

Acute oral toxicity
LD50, Mouse, 2,410 mg/kg

LD50, Rat, 3,305 mg/kg

Acute dermal toxicity
LD50, Rabbit, 2,764 mg/kg

Acute inhalation toxicity
As product: The LC50 has not been determined.

Diethylene glycol

Acute oral toxicity
In humans, expected to be moderately toxic if swallowed even though oral toxicity was low when tested in animals. Ingestion of quantities (approximately 65 mL (2 oz.) for diethylene glycol or 100 mL (3 oz.) for ethylene glycol) has caused death in humans. May cause nausea and vomiting. May cause abdominal discomfort or diarrhea. Excessive exposure may cause central nervous system effects, cardiopulmonary effects (metabolic acidosis), and kidney failure. LD50, Rat, male, 19,600 mg/kg

Lethal Dose, Human, adult, 65 ml Estimated.

Acute dermal toxicity
LD50, Rabbit, 13,330 mg/kg

Acute inhalation toxicity
LC50, Rat, 4 Hour, dust/mist, > 4.6 mg/l The LC50 value is greater than the Maximum Attainable Concentration. No deaths occurred at this concentration.

Tetraethylene glycol monoethyl ether

Acute oral toxicity
Single dose oral LD50 has not been determined.

Acute dermal toxicity
The dermal LD50 has not been determined.

Acute inhalation toxicity

The LC50 has not been determined.

Polyethylene glycol

Acute oral toxicity
Typical for this family of materials. LD50, Rat, > 10,000 mg/kg Estimated.

Acute dermal toxicity
Typical for this family of materials. LD50, Rabbit, > 20,000 mg/kg

Acute inhalation toxicity
At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous. For respiratory irritation and narcotic effects: No relevant data found.

Typical for this family of materials. LC50, Rat, 6 Hour, dust/mist, > 2.5 mg/l No deaths occurred at this concentration.

Diisopropanolamine

Acute oral toxicity
LD50, Rat, > 2,000 mg/kg OECD 401 or equivalent No deaths occurred at this concentration.

Acute dermal toxicity
LD50, Rabbit, 8,000 mg/kg

Acute inhalation toxicity
The LC50 has not been determined. No deaths occurred following exposure to a saturated atmosphere.

Diethylene glycol monomethyl ether

Acute oral toxicity
LD50, Mouse, 7,128 mg/kg

Acute dermal toxicity
LD50, Rabbit, 9,404 mg/kg

Acute inhalation toxicity

The LC50 value is greater than the Maximum Attainable Concentration. LC0, Rat, 6 Hour, vapour, > 1.2 mg/l No deaths occurred at this concentration.

Di-t-butyl-p-cresol

Acute oral toxicity
LD50, Rat, > 6,000 mg/kg OECD Test Guideline 401

Acute dermal toxicity
LD50, Rat, male and female, > 2,000 mg/kg OECD Test Guideline 402 No deaths occurred at this concentration.

Acute inhalation toxicity
The LC50 has not been determined.

Sodium hydroxide

Acute oral toxicity
Single dose oral LD50 has not been determined.

Acute dermal toxicity
The dermal LD50 has not been determined.

Acute inhalation toxicity
The LC50 has not been determined.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Polyethylene glycol monomethyl ether

Acute toxicity to fish
For this family of materials:
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
For this family of materials:
LC50, Pimephales promelas (fathead minnow), 96 Hour, > 10,000 mg/l

Acute toxicity to aquatic invertebrates
For this family of materials:
LC50, Daphnia magna (Water flea), 48 Hour, > 10,000 mg/l

Triethylene glycol monoethyl ether

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, > 10,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), static test, 48 Hour, > 10,000 mg/l, OECD Test Guideline 202 or Equivalent

Toxicity to bacteria
EC50, Bacteria, static test, 16 Hour, > 10,000 mg/l

Triethylene glycol monobutyl ether

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Leuciscus idus (Golden orfe), static test, 96 Hour, 2,200 - 4,600 mg/l, DIN 38412

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 48 Hour, > 500 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants
EC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 62.5 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria
IC50, Bacteria, static test, 16 Hour, > 5,000 mg/l

Triethylene glycol monomethyl ether

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Danio rerio (zebra fish), static test, 96 Hour, > 5,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 48 Hour, > 500 mg/l, Directive 84/449/EEC, C.2

Acute toxicity to algae/aquatic plants
ErC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, > 500 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria
EC0, activated sludge, static test, 0.5 Hour, Respiration rates., > 2,000 mg/l, activated sludge test (OECD 209)

Pentaethylene glycol

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), 96 Hour, > 50,000 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, > 20,000 mg/l

Acute toxicity to algae/aquatic plants
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth inhibition (cell density reduction), > 100 mg/l

Toxicity to bacteria
IC50, Bacteria, 16 Hour, > 5,000 mg/l

Tetraethylene Glycol

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, > 10,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), static test, 48 Hour, 7,746 mg/l, OECD Test Guideline 202 or Equivalent
LC50, Brine shrimp (Artemia salina), static test, 24 Hour, > 10,000 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants
EC50, Skeletonema costatum (marine diatom), static test, 72 Hour, Biomass, > 100 mg/l, OECD Test Guideline 201 or Equivalent

EC50, Pseudokirchneriella subcapitata (green algae), static test, 96 Hour, Biomass, > 1,000 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria
EC50, Bacteria, 7,500 mg/l

Polyethylene glycol monobutyl ether

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
Based on information for a similar material:
LC50, Fish, semi-static test, 96 Hour, > 1,800 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
Based on information for a similar material:
EC50, Daphnia magna (Water flea), static test, 48 Hour, > 3,200 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants
Based on information for a similar material:
ErC50, Scenedesmus capricornutum (fresh water algae), static test, 72 Hour, Growth rate inhibition, 2,490 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria
IC50, activated sludge, static test, 16 Hour, Growth inhibition, > 5,000 mg/l

Triethylene glycol

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Lepomis macrochirus (Bluegill sunfish), static test, 96 Hour, > 10,000 mg/l, Method Not Specified.
LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 69,800 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 48 Hour, > 10,000 mg/l, DIN 38412

Toxicity to bacteria
EC50, Bacteria, 16 Hour, > 10,000 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, > 15,000 mg/l
ChV (Chronic Value), Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, > 15,000 mg/l

Diethylene glycol monobutyl ether

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Lepomis macrochirus (Bluegill sunfish), static test, 96 Hour, 1,300 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 100 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants
ErC50, alga Scenedesmus sp., static test, 96 Hour, Growth rate inhibition, > 100 mg/l, OECD Test Guideline 201 or Equivalent
ErC50, alga Scenedesmus sp., static test, 96 Hour, Biomass, > 100 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria
EC50, Bacteria, static test, 255 mg/l

Diethylene glycol

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 75,200 mg/l, OECD Test Guideline 203 or Equivalent

Toxicity to bacteria
EC50, activated sludge, 3 Hour, > 1,000 mg/l, OECD 209 Test

Tetraethylene glycol monoethyl ether

Acute toxicity to fish
No relevant data found.

Polyethylene glycol

Acute toxicity to fish
Based on information for a similar material:
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Diisopropanolamine

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, 580 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 48 Hour, 277.7 mg/l, Directive 84/449/EEC, C.2

Acute toxicity to algae/aquatic plants
EC50, alga Scenedesmus sp., static test, 72 Hour, Growth rate inhibition, 339 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria
EC50, activated sludge, 30 min, > 1,995 mg/l

Diethylene glycol monomethyl ether

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, 5,741 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 48 Hour, 1,192 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants
EC50, Pseudokirchneriella subcapitata (green algae), static test, 96 Hour, Biomass, > 1,000 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria
EC50, activated sludge, 0.5 Hour, > 1,995 mg/l

Di-t-butyl-p-cresol
Acute toxicity to aquatic invertebrates
Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).
EC50, Daphnia magna (Water flea), static test, 48 Hour, 0.48 mg/l, OECD Test Guideline 202 or Equivalent

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 0.07 mg/l

Sodium hydroxide
Acute toxicity to fish
May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms.

Persistence and degradability

Polyethylene glycol monomethyl ether
Biodegradability: For this family of materials: Biodegradation under aerobic static laboratory conditions is low (BOD20 or BOD28/ThOD between 2.5 and 10%).

Triethylene glycol monoethyl ether
Biodegradability: Material is expected to be readily biodegradable. Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).
10-day Window: Pass
Biodegradation: 92.1 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	0 - 8 %
10 d	7 - 47 %
20 d	8 - 71 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals

Atmospheric half-life: 2.8 Hour
Method: Estimated.

Triethylene glycol monobutyl ether

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
10-day Window: Fail
Biodegradation: 85 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 2.10 mg/mg

Triethylene glycol monomethyl ether

Biodegradability: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
10-day Window: Pass
Biodegradation: 100 %
Exposure time: 13 d
Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 1.75 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	29 %
10 d	33 %
20 d	71 %

Photodegradation
Atmospheric half-life: 3.2 Hour
Method: Estimated.

Pentaethylene glycol

Biodegradability: Biodegradation under aerobic static laboratory conditions is moderate (BOD20 or BOD28/ThOD between 10 and 40%).

Theoretical Oxygen Demand: 1.68 mg/mg

Chemical Oxygen Demand: 1.68 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	3 %
10 d	11 %
20 d	34 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 2 Hour
Method: Estimated.

Tetraethylene Glycol

Biodegradability: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).

Theoretical Oxygen Demand: 1.65 mg/mg Calculated.

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	< 2.5 %
10 d	3 %
20 d	43 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 2.55 Hour
Method: Estimated.

Polyethylene glycol monobutyl ether

Biodegradability: Based on information for a similar material: Material is expected to be readily biodegradable.
10-day Window: Pass
Biodegradation: 76 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

Photodegradation
Sensitizer: OH radicals
Atmospheric half-life: 0.21 d
Method: Estimated.

Triethylene glycol

Biodegradability: Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability). Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 90 - 100 %
Exposure time: 10 d
Method: OECD Test Guideline 301A or Equivalent
10-day Window: Not applicable
Biodegradation: > 70 %
Exposure time: 2 - 14 d
Method: OECD Test Guideline 302B or Equivalent

10-day Window: Not applicable
Biodegradation: 63 %
Exposure time: 28 d
Method: OECD Test Guideline 306

Theoretical Oxygen Demand: 1.60 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	12 - 32 %
10 d	15 - 64 %
20 d	17 - 86 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 10.6 Hour
Method: Estimated.

Diethylene glycol monobutyl ether

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Not applicable
Biodegradation: 89 - 93 %
Exposure time: 28 d
Method: OECD Test Guideline 301C or Equivalent
10-day Window: Not applicable
Biodegradation: 100 %
Exposure time: 28 d
Method: OECD Test Guideline 302B or Equivalent

Theoretical Oxygen Demand: 2.17 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	27 %
10 d	60 %
20 d	81 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 11 Hour
Method: Estimated.

Diethylene glycol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
10-day Window: Pass
Biodegradation: 90 - 100 %
Exposure time: 20 d
Method: OECD Test Guideline 301A or Equivalent
10-day Window: Not applicable
Biodegradation: 82 - 98 %
Exposure time: 28 d
Method: OECD Test Guideline 302C or Equivalent

Theoretical Oxygen Demand: 1.51 mg/mg Estimated.

Tetraethylene glycol monoethyl ether

Biodegradability: No relevant data found.

Polyethylene glycol

Biodegradability: Based on information for a similar material: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).

Diisopropanolamine

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
10-day Window: Pass
Biodegradation: 94 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 2.41 mg/mg

Chemical Oxygen Demand: 1.86 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	3 %
10 d	60 %
20 d	91 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 0.105 d
Method: Estimated.

Diethylene glycol monomethyl ether

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
10-day Window: Pass

Biodegradation: 100 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 1.73 mg/mg

Photodegradation
Atmospheric half-life: 4.9 Hour
Method: Estimated.

Di-t-butyl-p-cresol

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Not applicable
Biodegradation: 4.5 %
Exposure time: 28 d
Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 2.98 mg/mg

Chemical Oxygen Demand: 2.25 - 2.27 mg/mg

Sodium hydroxide

Biodegradability: Biodegradability is not applicable to inorganic substances.

Bioaccumulative potential

Polyethylene glycol monomethyl ether

Bioaccumulation: For this family of materials: No bioconcentration is expected because of the relatively high water solubility.

Triethylene glycol monoethyl ether

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.6 at 20 °C Estimated.

Triethylene glycol monobutyl ether

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0.51 at 20 °C Measured

Triethylene glycol monomethyl ether

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -1.12 at 20 °C Measured

Pentaethylene glycol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -2.30 Estimated.

Tetraethylene Glycol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -2.02 Estimated.
Bioconcentration factor (BCF): 3.2 Fish Estimated.

Polyethylene glycol monobutyl ether

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0.436 at 20 °C Measured

Triethylene glycol
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -1.75 Estimated.

Diethylene glycol monobutyl ether
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 1 Measured

Diethylene glycol
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -1.98 at 20 °C Estimated.
Bioconcentration factor (BCF): 100 Fish Measured

Tetraethylene glycol monoethyl ether
Bioaccumulation: No relevant data found.

Polyethylene glycol
Bioaccumulation: No data available for this product. No bioconcentration is expected because of the relatively high water solubility.

Diisopropanolamine
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.79 at 20 °C Measured
Bioconcentration factor (BCF): 3 Estimated.

Diethylene glycol monomethyl ether
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.47 at 20 °C Measured

Di-t-butyl-p-cresol
Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient: n-octanol/water(log Pow): 4.17 - 5.10 Estimated.
Bioconcentration factor (BCF): 598.4 Fish Estimated.

Sodium hydroxide
Bioaccumulation: No bioconcentration is expected because of the relatively high water solubility.

Mobility in soil

Polyethylene glycol monomethyl ether
No data available.

Triethylene glycol monoethyl ether
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 10 Estimated.

Triethylene glycol monobutyl ether

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 10 Estimated.

Triethylene glycol monomethyl ether
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 10 Estimated.

Pentaethylene glycol
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 10 Estimated.

Tetraethylene Glycol
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): < 0 Estimated.

Polyethylene glycol monobutyl ether
No data available.

Triethylene glycol
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 10 Estimated.

Diethylene glycol monobutyl ether
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 2 Estimated.

Diethylene glycol
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): < 1 Estimated.

Tetraethylene glycol monoethyl ether
No relevant data found.

Polyethylene glycol
No data available.

Diisopropanolamine
Potential for mobility in soil is very high (Koc between 0 and 50).
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Partition coefficient (Koc): 43 Estimated.

Diethylene glycol monomethyl ether
Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): < 1 Estimated.

Di-t-butyl-p-cresol

Expected to be relatively immobile in soil (Koc > 5000).
Partition coefficient (Koc): > 5000 Estimated.

Sodium hydroxide

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 14 Estimated.

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

Treatment and disposal methods of used packaging: Empty containers should be recycled or otherwise disposed of by an approved waste management facility. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. Do not re-use containers for any purpose.

14. TRANSPORT INFORMATION

TDG

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service

representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Canadian Domestic Substances List (DSL) (DSL)
All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

16. OTHER INFORMATION

Hazard Rating System
NFPA

Health	Fire	Reactivity
1	1	0

Revision
Identification Number: 101234150 / A208 / Issue Date: 10/11/2016 / Version: 15.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

(c)	ceiling occupational exposure limit
ACGIH	USA. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV)
C	ceiling limit
CA AB OEL	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	Canada. British Columbia OEL
CA QC OEL	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Dow IHG	Dow Industrial Hygiene Guideline
SKIN	Absorbed via skin
TWA	Time weighted average
TWAEV	Time-weighted average exposure value
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW CHEMICAL CANADA ULC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his

activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.