



SAFETY DATA SHEET

DOW CHEMICAL CANADA ULC

Product name: XIAMETER™ OFS-6011 Silane

Issue Date: 07/15/2024

Print Date: 07/17/2024

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: XIAMETER™ OFS-6011 Silane

Other means of identification: 3-aminopropyltriethoxysilane

Recommended use of the chemical and restrictions on use

Identified uses: Adhesive, binding agents

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 (transportation emergencies only): 1-800-424-9300

Local Emergency Contact (transportation emergencies only): 1-800-424-9300

24-Hour Emergency Contact: 1-989-636-4400

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).

Acute toxicity - Category 4 - Oral

Skin corrosion - Category 1B

Serious eye damage - Category 1

Skin sensitisation - Sub-category 1B

Label elements

Hazard pictograms



Signal word: **DANGER!**

Hazards

H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.

Precautionary statements**Prevention**

P261 Avoid breathing mist or vapours.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves, protective clothing, eye protection, face protection and/or hearing protection.

Response

P301 + P312 IF SWALLOWED: Call a POISON CENTER and/or doctor if you feel unwell.
+ P330 Rinse mouth.
P301 + P330 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
+ P331
P303 + P361 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin
+ P353 with water.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
+ P310 Immediately call a POISON CENTER and/or doctor.
P305 + P351 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact
+ P338 + lenses, if present and easy to do. Continue rinsing. Immediately call a POISON
P310 CENTER and/or doctor.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents and/or container to an approved waste disposal plant.

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: 3-aminopropyltriethoxysilane

This product is a substance.

Substance name: 3-Aminopropyltriethoxysilane

CASRN: 919-30-2

Chemical name	Common name and synonym	CASRN	Concentration (w/w)
3-Aminopropyltriethoxysilane	3-aminopropyltriethoxysilane	919-30-2	>= 98.0 - <= 100.0 %

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 and keep comfortable for breathing. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Immediate continued and thorough washing in flowing water for at least 30 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential. Wash clothing before reuse. Properly dispose of leather items such as shoes, belts, and watchbands. Suitable emergency safety shower facility should be immediately available.

Eye contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.

Most important symptoms and effects, both acute and delayed:

Harmful if swallowed. May cause an allergic skin reaction. Causes serious eye damage. Causes severe burns.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Due to irritant properties, swallowing may result in burns and/or ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal or esophageal control if lavage is done. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Excessive

exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam. Carbon dioxide (CO₂). Dry chemical. Water spray.

Unsuitable extinguishing media: None known..

Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon oxides. Nitrogen oxides (NO_x). Silicon oxides.

Unusual Fire and Explosion Hazards: Exposure to combustion products may be a hazard to health..

Advice for firefighters

Fire Fighting Procedures: Use water spray to cool unopened containers.. Evacuate area.. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations..

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Remove undamaged containers from fire area if it is safe to do so.

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus.. Use personal protective equipment..

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Soak up with inert absorbent material. Clean up remaining materials from spill with suitable absorbant. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
See sections: 7, 8, 11, 12 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not get on skin or clothing. Do not breathe vapours or spray mist. Do not swallow. Do not get in eyes. Keep container tightly closed. Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice. CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings even after container is emptied. Use with local exhaust ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Conditions for safe storage: Keep in properly labelled containers. Store locked up. Keep tightly closed. Store in accordance with the particular national regulations.

Do not store with the following product types: Strong oxidizing agents. Organic peroxides. Explosives. Unsuitable materials for containers: None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Consult local authorities for recommended exposure limits.

Component	Regulation	Type of listing	Value
3-Aminopropyltriethoxysilane	Dow IHG	TWA	0.5 mg/m ³
Ethanol	ACGIH	TWA	1,000 ppm
	Further information: URT irr: Upper Respiratory Tract irritation		
	ACGIH	STEL	1,000 ppm
	Further information: URT irr: Upper Respiratory Tract irritation		
	CA AB OEL	TWA	1,880 mg/m ³ 1,000 ppm
	CA BC OEL	STEL	1,000 ppm
	CA QC OEL	STEV	1,000 ppm
	Further information: C3: Carcinogenic effect detected in animals. Results of studies relating to the carcinogenicity of these substances in animals are not necessarily applicable to humans.		

The following substance(s), which have Occupational Exposure Limit(s) (OEL), may be formed during handling or processing:, Ethanol

Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Ethyl vinyl alcohol laminate

("EVAL"). 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: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

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, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

The following should be effective types of air-purifying respirators: Multi-gas cartridge with particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	liquid
Color	colourless

Odor Fishy

Odor Threshold No data available

pH No data available

Melting point/freezing point

Melting point/ range No data available

Freezing point No data available

Boiling point, initial boiling point and boiling range

Boiling point (760 mmHg) 217 °C

Flash point closed cup 96 °C

Evaporation Rate (Butyl Acetate = 1) No data available

Flammability

Flammability (solid, gas) Not applicable

Flammability (liquids) Not applicable

Upper/lower flammability or explosive limits

Lower explosion limit No data available

Upper explosion limit No data available

Vapor Pressure No data available

Relative vapour density

Relative Vapor Density (air = 1) No data available

Density and / or relative density

Relative Density (water = 1)	0.95
Solubility(ies)	
Water solubility	No data available
Partition coefficient: n-octanol/water (log value)	log Pow: 1.7 <i>Calculated.</i>
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	1.65 cSt at 25 °C
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.
Molecular weight	No data available
Particle characteristics	
Particle size	Not applicable

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

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Can react with strong oxidizing agents. When heated to temperatures above 150 °C (300 °F) in the presence of air, product can form formaldehyde vapours. Safe handling conditions may be maintained by keeping vapour concentrations within the occupational exposure limit for formaldehyde. Vapours may form explosive mixture with air.

Conditions to avoid: None known.

Incompatible materials: Avoid contact with oxidizing materials.

Hazardous decomposition products:

Decomposition products can include and are not limited to: Ethanol.

11. TOXICOLOGICAL INFORMATION

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

Information on likely routes of exposure

Inhalation, Eye contact, Skin contact, Ingestion.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

Acute Toxicity Endpoints:

Harmful if swallowed.

Acute oral toxicity**Information for the Product:**

Low toxicity if swallowed. Swallowing may result in irritation or burns of the mouth, throat, and gastrointestinal tract.

Based on product testing:

LD50, Rat, female, 1,479 mg/kg

Based on product testing:

LD50, Rat, male, 2,665 mg/kg

Information for components:**3-Aminopropyltriethoxysilane**

LD50, Rat, female, 1,479 mg/kg

LD50, Rat, male, 2,665 mg/kg

Acute dermal toxicity**Information for the Product:**

Prolonged skin contact is unlikely to result in absorption of harmful amounts. Repeated skin contact may result in absorption of harmful amounts.

Based on product testing:

LD50, Rabbit, male and female, 4,041 mg/kg

Information for components:**3-Aminopropyltriethoxysilane**

Based on product testing: LD50, Rabbit, male and female, 4,041 mg/kg

Acute inhalation toxicity**Information for the Product:**

Vapor concentrations are attainable which could be hazardous on single exposure. Excessive exposure may cause severe irritation to upper respiratory tract (nose and throat) and lungs. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Based on product testing:

LC50, Rat, male, 6 Hour, vapour, > 5 ppm No deaths occurred at this concentration.

Based on product testing:

LC50, Rat, female, 6 Hour, vapour, > 16 ppm No deaths occurred at this concentration.

Based on product testing:

LC50, Rat, male and female, 4 Hour, Aerosol, > 7.35 mg/l

Information for components:**3-Aminopropyltriethoxysilane**

Based on product testing: LC50, Rat, male, 6 Hour, vapour, > 5 ppm No deaths occurred at this concentration.

Based on product testing: LC50, Rat, female, 6 Hour, vapour, > 16 ppm No deaths occurred at this concentration.

Based on product testing: LC50, Rat, male and female, 4 Hour, Aerosol, > 7.35 mg/l

Skin corrosion/irritation

Causes severe burns.

Information for the Product:

Based on product testing:

Brief contact may cause severe skin burns. Symptoms may include pain, severe local redness and tissue damage.

Information for components:

3-Aminopropyltriethoxysilane

Brief contact may cause severe skin burns. Symptoms may include pain, severe local redness and tissue damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Information for the Product:

Based on product testing:

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Vapor or mist may cause eye irritation.

Information for components:

3-Aminopropyltriethoxysilane

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Vapor or mist may cause eye irritation.

Sensitization

For skin sensitization:

May cause an allergic skin reaction.

For respiratory sensitization:

Not classified based on available information.

Information for the Product:

For skin sensitization:

Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Information for components:

3-Aminopropyltriethoxysilane

Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

3-Aminopropyltriethoxysilane

Material is corrosive. Material is not classified as a respiratory irritant; however, upper respiratory tract irritation or corrosivity may be expected.

Aspiration Hazard

Not classified based on available information.

Information for the Product:

Based on available information, aspiration hazard could not be determined.

Information for components:

3-Aminopropyltriethoxysilane

Aspiration into the respiratory system may occur during ingestion or vomiting. Due to corrosivity, tissue damage or lung injury may occur.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Not classified based on available information.

Information for the Product:

In animals, effects have been reported on the following organs:
Liver.

Information for components:

3-Aminopropyltriethoxysilane

In animals, effects have been reported on the following organs:
Liver.

Carcinogenicity

Not classified based on available information.

Information for the Product:

Did not cause cancer in laboratory animals.

Information for components:

3-Aminopropyltriethoxysilane

Did not cause cancer in laboratory animals.

Teratogenicity

Not classified based on available information.

Information for the Product:

Did not cause birth defects in laboratory animals.

Information for components:

3-Aminopropyltriethoxysilane

Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive toxicity

Not classified based on available information.

Information for the Product:

In animal studies, did not interfere with fertility.

Information for components:

3-Aminopropyltriethoxysilane

In animal studies, did not interfere with fertility.

Mutagenicity

Not classified based on available information.

Information for the Product:

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Information for components:

3-Aminopropyltriethoxysilane

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION

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

Toxicity

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), semi-static test, 96 Hour, > 934 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 331 mg/l

Acute toxicity to algae/aquatic plants

ErC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, > 1,000 mg/l

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1.3 mg/l

Toxicity to bacteria

EC50, Pseudomonas putida, Respiration inhibition, 5.75 Hour, 43 mg/l

Persistence and degradability

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

Biodegradation: 67 %

Exposure time: 28 d

Method: OECD Test Guideline 301A or Equivalent

Stability in Water (1/2-life)

Hydrolysis, half-life, 8.5 Hour, pH 7, Half-life Temperature 24.7 °C

Bioaccumulative potential

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 1.7 at 20 °C Calculated.

Bioconcentration factor (BCF): 3.4 Cyprinus carpio (Carp) 56 d

Mobility in soil

No relevant data found.

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 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 SDS SECTION 1: Identified Uses. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section 10 Regulatory Information, MSDS Section 15

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 of the waste generator. Do not re-use containers for any purpose.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S.(3-Aminopropyltriethoxysilane)
UN number	UN 2735
Class	8
Packing group	II

Classification for SEA transport (IMO-IMDG):

Proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S.(3-Aminopropyltriethoxysilane)
UN number	UN 2735
Class	8
Packing group	II
Marine pollutant	No
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):

Proper shipping name	Amines, liquid, corrosive, n.o.s.(3-Aminopropyltriethoxysilane)
UN number	UN 2735
Class	8
Packing group	II

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)

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

Revision

Identification Number: 6023801 / A208 / Issue Date: 07/15/2024 / Version: 10.0

In case this version of the SDS contains significant changes from the previous version, they are listed below. If no significant changes are displayed, then no significant changes occurred.

Changes encompass identification, hazards, tox/eco-tox information and the addition/removal of the ingredients, and regulatory information, hazard information, uses, risk management measures and other key regulatory changes of the product. Detailed explanation of the changes can be obtained upon request.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
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
STEL	short-term exposure limit
STEV	Short-term exposure value
TWA	Time weighted average

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 -

Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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.

CA