



# SAFETY DATA SHEET

## DOW CHEMICAL CANADA ULC

**Product name: AQUICAR™ DB 20 Water Treatment  
Microbiocide**

**Issue Date: 07/24/2018**

**Print Date: 08/14/2018**

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.

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## 1. IDENTIFICATION

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**Product name:** AQUICAR™ DB 20 Water Treatment Microbiocide

### **Recommended use of the chemical and restrictions on use**

**Identified uses:** For biocidal applications. For industrial use. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

### **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

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## 2. HAZARDS IDENTIFICATION

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### **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).

Corrosive to metals - Category 1

Acute toxicity - Category 4 - Oral

Acute toxicity - Category 4 - Inhalation

Skin corrosion - Category 1

Serious eye damage - Category 1

Skin sensitisation - Category 1

### **Label elements**

**Hazard pictograms**



Signal word: **DANGER!**

#### **Hazards**

May be corrosive to metals.  
Harmful if swallowed or if inhaled.  
Causes severe skin burns and eye damage.  
May cause an allergic skin reaction.

#### **Precautionary statements**

##### **Prevention**

Keep only in original packaging.  
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
Wash skin thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Use only outdoors or in a well-ventilated area.  
Contaminated work clothing should not be allowed out of the workplace.  
Wear protective gloves/ protective clothing/ eye protection/ face protection.

##### **Response**

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.  
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.  
If skin irritation or rash occurs: Get medical advice/ attention.  
Take off contaminated clothing and wash it before reuse.  
Absorb spillage to prevent material damage.

##### **Storage**

Store locked up.

##### **Disposal**

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

#### **Other hazards**

No data available

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### **3. COMPOSITION/INFORMATION ON INGREDIENTS**

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This product is a mixture.

| <b>Component</b> | <b>CASRN</b> | <b>Concentration</b> |
|------------------|--------------|----------------------|
|------------------|--------------|----------------------|

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|                                   |            |                     |
|-----------------------------------|------------|---------------------|
| Polyethylene glycol               | 25322-68-3 | >= 46.5 - <= 54.5 % |
| 2,2-Dibromo-3-nitrilopropionamide | 10222-01-2 | 20.0%               |
| Sodium bromide                    | 7647-15-6  | <= 4.0 %            |

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#### 4. FIRST AID MEASURES

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##### 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 person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

**Skin contact:** Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly. 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:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

###### 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:** 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/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. Probable mucosal damage may contraindicate the use of gastric lavage. No specific antidote. Treatment of exposure should be

directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

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## 5. FIREFIGHTING MEASURES

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**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

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

### **Special hazards arising from the substance or mixture**

**Hazardous combustion products:** Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen bromide. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** This material will not burn until the water has evaporated. Residue can burn. Container may rupture from gas generation in a fire situation.

### **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. If product becomes contaminated with water, monitor product for heat generation and/or decomposition. 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. Move container from fire area if this is possible without hazard. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

**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). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Evacuate area. Keep upwind of spill. Refer to section 7, Handling, for additional precautionary measures. Only trained and properly protected personnel must be involved in clean-up operations. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Attempt to neutralize by adding materials such as Sodium bisulphite. Sodium metabisulfite. Neutralize with approximately 17.2 grams sodium bisulfite (NaHSO<sub>3</sub>) or 15.7 grams sodium meta bisulphite (Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>) for every 100 grams biocidal product. Absorb with materials such as: Dirt. Sand. Vermiculite. Zorb-all®. Hazorb®. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Keep out of reach of children. Do not get in eyes, on skin, on clothing. Avoid breathing mist. Avoid prolonged or repeated contact with skin. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. 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 original container. Keep container tightly closed. Do not store in: Aluminum. Brass. Copper. Copper alloys. Mild steel. Stainless steel.

### Storage stability

**Shelf life: Use within** 12 Month

**Storage temperature:** <= 35 °C

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### 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/Notation                          |
|--|------------|-----------------------------|---|
| Polyethylene glycol<br>2,2-Dibromo-3-<br>nitrilopropionamide | US WEEL    | TWA aerosol                 | 10 mg/m <sup>3</sup>                    |
|  | ACGIH      | C                           | 5 mg/m <sup>3</sup> , Cyanide           |
|  | Dow IHG    | TWA Respirable<br>fraction  | 0.05 mg/m <sup>3</sup>                  |
|  | Dow IHG    | TWA Respirable<br>fraction  | Skin Sensitizer                         |
|  | Dow IHG    | STEL Respirable<br>fraction | 0.1 mg/m <sup>3</sup>                   |
|  | Dow IHG    | STEL Respirable<br>fraction | Skin Sensitizer                         |
| Sodium bromide   | CA QC OEL  | C                           | 11 mg/m <sup>3</sup> 10 ppm,<br>Cyanide |
|  | Dow IHG    | TWA                         | 6 mg/m <sup>3</sup>                     |

### 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 chemical goggles.

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Polyethylene. Chlorinated polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Viton. Neoprene. Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). 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, 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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**Appearance**

|                                      |   |
|--------------------------------------|---|
| Physical state                       | Liquid.   |
| Color                                | Colorless to brown  |
| Odor                                 | Odorless to mild  |
| Odor Threshold                       | No test data available  |
| pH                                   | 1.5 - 5.0 <i>Literature</i>   |
| Melting point/range                  | Not applicable  |
| Freezing point                       | < -50 °C <i>Literature</i>  |
| Boiling point (760 mmHg)             | > 70 °C <i>Literature</i> Decomposition   |
| Flash point                          | <b>closed cup</b> <i>Literature</i> none to 100°C (212 °F)<br><b>open cup</b> >= 182 °C <i>Cleveland Open Cup</i> |
| Evaporation Rate (Butyl Acetate = 1) | No test data available  |
| Flammability (solid, gas)            | Not applicable to liquids   |
| Lower explosion limit                | No test data available  |
| Upper explosion limit                | No test data available  |
| Vapor Pressure                       | 18.9 mmHg at 25 °C <i>Estimated.</i>  |
| Relative Vapor Density (air = 1)     | No test data available  |
| Relative Density (water = 1)         | 1.20 - 1.30 at 23 °C <i>Literature</i>  |
| Water solubility                     | 7.5 % at 20 °C <i>Literature</i> Soluble  |

|   |   |
|---|---|
| <b>Partition coefficient: n-octanol/water</b> | No data available   |
| <b>Auto-ignition temperature</b>              | No test data available  |
| <b>Decomposition temperature</b>              | No test data available  |
| <b>Dynamic Viscosity</b>                      | 20 cP at 25 °C (Brookfield Viscosity - @ 100 rpm, #0 spindle) |
| <b>Kinematic Viscosity</b>                    | 16 cSt at 25 °C <i>Calculated.</i>                            |
| <b>Explosive properties</b>                   | No data available   |
| <b>Oxidizing properties</b>                   | No data available   |
| <b>Molecular weight</b>                       | No test data available  |

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

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## 10. STABILITY AND REACTIVITY

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**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:** Avoid temperatures above 70°C (158°F) Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

**Incompatible materials:** Avoid contact with: Oxidizers. Strong bases. Avoid contact with metals such as: Aluminum.

**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: Carbon dioxide. Bromine. Cyanogen bromide. Dibromoacetonitrile.

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## 11. TOXICOLOGICAL INFORMATION

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

### Acute toxicity

#### Acute oral toxicity

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

LD50, Rat, 510 mg/kg

#### Acute dermal toxicity

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

LD50, Rabbit, > 2,000 mg/kg

#### Acute inhalation toxicity

Mist may cause irritation of upper respiratory tract (nose and throat).

LC50, Rat, female, 4 Hour, dust/mist, 1.25 mg/l

LC50, Rat, male, 4 Hour, dust/mist, 1.40 mg/l

**Skin corrosion/irritation**

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

**Serious eye damage/eye irritation**

May cause pain disproportionate to the level of irritation to eye tissues.

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

**Sensitization**

Has caused allergic skin reactions in humans.

For respiratory sensitization:

No relevant information found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

The substance or mixture is not classified as specific target organ toxicant, single exposure.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

Excessive exposure may increase the blood and tissue levels of bromine.

Observations in animals include kidney effects following repeated ingestion of active ingredient, but no evidence of systemic toxicity following repeated dermal exposure at maximum attainable doses

**Carcinogenicity**

Active ingredient did not cause cancer in laboratory animals. There is evidence that dibromoacetonitrile (DBAN), a possible degradation product of 2,2-dibromo-3-nitrilopropionamide (DBNPA), can produce cancer in laboratory animals. However, the relevance of this to humans is unknown.

**Teratogenicity**

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

**Reproductive toxicity**

No relevant data found.

**Mutagenicity**

For the active ingredient(s): In vitro genetic toxicity studies were negative. For the major component(s): Animal genetic toxicity studies were negative.

**Aspiration Hazard**

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

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**12. ECOLOGICAL INFORMATION**

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



**Toxicity**

**Acute toxicity to fish**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 3.6 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), static test, 48 Hour, 2.5 mg/l

**Acute toxicity to algae/aquatic plants**

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate inhibition, 1.5 mg/l

**Chronic aquatic toxicity**

**Chronic toxicity to aquatic invertebrates**

For the active ingredient(s):

NOEC, Daphnia magna (Water flea), flow-through test, 21 d, 0.06 mg/l

**Persistence and degradability**

**Biodegradability:** Considered to be rapidly degradable.

**Bioaccumulative potential**

**Polyethylene glycol**

**Bioaccumulation:** No relevant data found.

**2,2-Dibromo-3-nitropropionamide**

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

**Partition coefficient: n-octanol/water(log Pow):** 0.79 Measured

**Bioconcentration factor (BCF):** 13 Fish Measured

**Sodium bromide**

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

**Bioconcentration factor (BCF):** < 40 Fish Measured

**Mobility in soil**

**Polyethylene glycol**

No relevant data found.

**2,2-Dibromo-3-nitropropionamide**

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

**Partition coefficient (Koc):** 15 Estimated.

**Sodium bromide**

No relevant data found.

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### 13. DISPOSAL CONSIDERATIONS

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**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.

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### 14. TRANSPORT INFORMATION

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**TDG**

|                             |  |
|-----------------------------|--|
| <b>Proper shipping name</b> | CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(2,2-Dibromo-3-nitrilopropionamide) |
| <b>UN number</b>            | UN 3265  |
| <b>Class</b>                | 8  |
| <b>Packing group</b>        | III  |

**Classification for SEA transport (IMO-IMDG):**

|   |  |
|---|--|
| <b>Proper shipping name</b>   | CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(2,2-Dibromo-3-nitrilopropionamide) |
| <b>UN number</b>  | UN 3265  |
| <b>Class</b>  | 8  |
| <b>Packing group</b>  | III  |
| <b>Marine pollutant</b>   | No   |
| <b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b> | Consult IMO regulations before transporting ocean bulk                       |

**Classification for AIR transport (IATA/ICAO):**

|                             |  |
|-----------------------------|--|
| <b>Proper shipping name</b> | Corrosive liquid, acidic, organic, n.o.s.(2,2-Dibromo-3-nitrilopropionamide) |
| <b>UN number</b>            | UN 3265  |
| <b>Class</b>                | 8  |
| <b>Packing group</b>        | III  |

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.

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## 15. REGULATORY INFORMATION

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### Canadian Domestic Substances List (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

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## 16. OTHER INFORMATION

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### Revision

Identification Number: 11007464 / A208 / Issue Date: 07/24/2018 / Version: 18.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

### Legend

|           |   |
|-----------|---|
| ACGIH     | USA. ACGIH Threshold Limit Values (TLV)   |
| C         | Ceiling   |
| 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   |
| TWA       | Time weighted average   |
| US WEEL   | USA. Workplace Environmental Exposure Levels (WEEL)   |

### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; 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; 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