



## **Product Name: Tridem™ Herbicide**

Tridem™ Herbicide is a combination of the following products:

Tridem™ A Herbicide, PCP: 33290

Tridem™ B Herbicide, PCP: 33440

Bindem™ Utility Modifier

The SDS labels are attached

### **COMPANY IDENTIFICATION**

CORTEVA AGRISCIENCE CANADA COMPANY  
#2450, 215 - 2ND STREET S.W.  
CALGARY AB, T2P 1M4  
CANADA

**Customer Information Number :** 800-667-3852

**E-mail address :** solutions@corteva.com

### **EMERGENCY TELEPHONE**

**24-Hour Emergency Contact :** 1-888-226-8832

**Local Emergency Contact :** 1-888-226-8832

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Corteva Agriscience™ encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container. This Safety Data Sheet adheres to the standards and regulatory requirements of Canada and may not meet the regulatory requirements in other countries.

### SECTION 1. IDENTIFICATION

Product name : TRIDEM™ A HERBICIDE  
Other means of identification : No data available

#### Manufacturer or supplier's details

#### COMPANY IDENTIFICATION

Manufacturer/importer : CORTEVA AGRISCIENCE CANADA COMPANY  
#2450, 215 - 2ND STREET S.W.  
CALGARY AB, T2P 1M4  
CANADA

Customer Information Number : 800-667-3852  
E-mail address : solutions@corteva.com

Emergency telephone number : CANUTEC  
1-888-226-8832

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

Recommended use : End use herbicide product

### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with the Hazardous Products Regulations

Eye irritation : Category 2B

#### GHS label elements

Signal word : Warning

Hazard statements : H320 Causes eye irritation.

Precautionary statements : **Prevention:**  
P264 Wash skin thoroughly after handling.  
**Response:**  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.

#### Other hazards

None known.

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### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

#### Components

Chemical name	Common Name/Synonym	CAS-No.	Concentration (% w/w)
Substituted Quinoline Derivative**	Substituted Quinoline Derivative	**	45.15
pyroxsulam (ISO)	pyroxsulam (ISO)	422556-08-9	21.5
Sodium lignosulfonate	Sodium lignosulfonate	8061-51-6	$\geq 10 - < 20$ *
citric acid	citric acid	77-92-9	$\geq 3 - < 10$ *
Kaolin	Kaolin	1332-58-7	$\geq 3 - < 10$ *
Sodium N-methyl-N-oleoyltaurine	Sodium N-methyl-N-oleoyltaurine	137-20-2	$\geq 1 - < 3$ *
Balance	Balance	Not Assigned	$> 10$

\* Actual concentration or concentration range is withheld as a trade secret

\*\* See Section 15 for HMIRA information.

### SECTION 4. FIRST AID MEASURES

- If inhaled : 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.
- In case of skin contact : Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.  
Suitable emergency safety shower facility should be available in work area.
- In case of eye contact : Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.  
Suitable emergency eye wash facility should be available in work area.
- If swallowed : 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 : None known.
- Protection of first-aiders : 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.

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Notes to physician : 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.

### SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray  
Alcohol-resistant foam

Unsuitable extinguishing media : None known.

Specific hazards during fire-fighting : Exposure to combustion products may be a hazard to health.  
Do not allow run-off from fire fighting to enter drains or water courses.

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:  
Nitrogen oxides (NOx)  
Carbon oxides

Specific extinguishing methods : Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.

Further information : 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.

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.  
Use personal protective equipment.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Avoid dust formation.  
Avoid breathing dust.  
Use personal protective equipment.  
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.  
Discharge into the environment must be avoided.  
Prevent further leakage or spillage if safe to do so.  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.  
Prevent from entering into soil, ditches, sewers, undewater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up : Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in.

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Pick up and arrange disposal without creating dust.  
Recovered material should be stored in a vented container.  
The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to over-pressurization of the container.  
Keep in suitable, closed containers for disposal.  
Sweep up or vacuum up spillage and collect in suitable container for disposal.  
See Section 13, Disposal Considerations, for additional information.

### SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice.  
Smoking, eating and drinking should be prohibited in the application area.  
Do not get in eyes.  
Avoid contact with skin and eyes.  
Avoid prolonged or repeated contact with skin.  
Take care to prevent spills, waste and minimize release to the environment.  
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
- Conditions for safe storage : Store in a closed container.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
Keep in properly labelled containers.  
Store in accordance with the particular national regulations.
- Materials to avoid : Do not store near acids.  
Strong oxidizing agents
- Packaging material : Unsuitable material: None known.

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
pyroxsulam (ISO)	422556-08-9	TWA	5 mg/m3	Dow IHG
Kaolin	1332-58-7	TWA (Respirable)	2 mg/m3	CA AB OEL
		TWA (Respirable)	2 mg/m3	CA BC OEL
		TWAEV (respirable dust)	2 mg/m3	CA QC OEL
		TWA (Respirable particulate matter)	2 mg/m3	ACGIH

- Engineering measures : 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

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for most operations.  
Local exhaust ventilation may be necessary for some operations.

### Personal protective equipment

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. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

Hand protection

Remarks : Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyvinyl chloride ("PVC" or "vinyl"). Neoprene. 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.

Eye protection : Use chemical goggles.

Skin and body 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.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Granules.
Colour	: Tan
Odour	: Mild
Odour Threshold	: No data available
pH	: 4.13 (24.4 °C) Method: pH Electrode
Melting point/range	: No data available
Freezing point	: Not applicable
Boiling point/boiling range	: Not applicable
Flash point	: Not applicable
Evaporation rate	: Not applicable
Flammability (solid, gas)	: No data available

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Upper explosion limit / Upper flammability limit	:	Not applicable
Lower explosion limit / Lower flammability limit	:	Not applicable
Vapour pressure	:	Not applicable
Relative vapour density	:	Not applicable
Bulk density	:	540 g/L (24 °C) Method: Loose Volumetric  533 g/L (24 °C) Method: Tapped Volumetric
Solubility(ies) Water solubility	:	Dispersible
Auto-ignition temperature	:	Not applicable
Viscosity Viscosity, dynamic	:	Not applicable
Explosive properties	:	No
Oxidizing properties	:	No significant increase (>5C) in temperature.

### SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	No decomposition if stored and applied as directed. Stable under normal conditions.
Possibility of hazardous reactions	:	Stable under recommended storage conditions. No hazards to be specially mentioned. None known.
Conditions to avoid	:	None known.
Incompatible materials	:	Strong acids Strong bases
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: Nitrogen oxides (NOx) Carbon oxides

### SECTION 11. TOXICOLOGICAL INFORMATION

#### Acute toxicity

##### Product:

Acute oral toxicity	:	LD50 (Rat, female): > 2,000 - 5,000 mg/kg Method: OECD Test Guideline 423
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 5.24 mg/l Exposure time: 4 h Test atmosphere: dust/mist

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Method: OECD Test Guideline 436  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg  
Method: OECD Test Guideline 402  
Symptoms: No deaths occurred at this concentration.

### **Components:**

#### **Substituted Quinoline Derivative:**

Acute oral toxicity : LD50 (Rat, female): > 2,000 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat, male and female): > 6.11 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg

#### **pyroxsulam (ISO):**

Acute oral toxicity : LD50 (Rat, female): > 5,000 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5.12 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute dermal toxicity

#### **Sodium lignosulfonate:**

Acute oral toxicity : LD50 (Rat, male and female): > 10,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0.48 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity



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### **citric acid:**

Acute oral toxicity	: LD50 (Mouse): 5,400 mg/kg Assessment: The substance or mixture has no acute oral toxicity LD50 (Rat): 3,000 - 12,000 mg/kg
Acute dermal toxicity	: LD50 (Rabbit): > 2,000 mg/kg Symptoms: No deaths occurred at this concentration. Assessment: The substance or mixture has no acute dermal toxicity

### **Kaolin:**

Acute oral toxicity	: LD50 (Rat): > 5,000 mg/kg
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### **Sodium N-methyl-N-oleoyltaurine:**

Acute oral toxicity	: LD50 (Rat): > 2,000 mg/kg
Acute dermal toxicity	: LD50 (Rat): > 2,000 mg/kg

### **Skin corrosion/irritation**

#### **Product:**

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: No skin irritation

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: No skin irritation

#### **Components:**

### **citric acid:**

Result	: No skin irritation
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### **Kaolin:**

Species	: Rabbit
Result	: No skin irritation

### **Serious eye damage/eye irritation**

#### **Product:**

Species	: Rabbit
Result	: Mild eye irritation
Method	: OECD Test Guideline 405

Remarks	: May cause moderate eye irritation. Corneal injury is unlikely.
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Species	: Rabbit
Result	: Mild eye irritation
Method	: OECD Test Guideline 405

Remarks	: May cause moderate eye irritation. Corneal injury is unlikely.
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### Components:

#### **pyroxsulam (ISO):**

Species	: Rabbit
Result	: No eye irritation

#### **Sodium lignosulfonate:**

Result	: Eye irritation
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#### **citric acid:**

Result	: Eye irritation
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#### **Kaolin:**

Species	: Rabbit
Result	: No eye irritation

#### **Sodium N-methyl-N-oleoyltaurine:**

Species	: Rabbit
Result	: Eye irritation

### **Respiratory or skin sensitisation**

#### **Product:**

Test Type	: Local lymph node assay
Species	: Mouse
Assessment	: Does not cause skin sensitisation.
Method	: OECD Test Guideline 429

Test Type	: Local lymph node assay
Species	: Mouse
Assessment	: Does not cause skin sensitisation.
Method	: OECD Test Guideline 429

### **Components:**

#### **Substituted Quinoline Derivative:**

Species	: Mouse
Result	: Does not cause skin sensitisation.

#### **pyroxsulam (ISO):**

Species	: Guinea pig
Assessment	: The product is a skin sensitiser, sub-category 1B.

#### **Sodium lignosulfonate:**

Remarks	: Did not cause allergic skin reactions when tested in guinea pigs.
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Remarks	: For respiratory sensitization: No relevant data found.
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### **Sodium N-methyl-N-oleoyltaurine:**

Species	: Guinea pig
Assessment	: Does not cause skin sensitisation.

### **Germ cell mutagenicity**

#### **Components:**

#### **Substituted Quinoline Derivative:**

Germ cell mutagenicity - Assessment	: In vitro genetic toxicity studies were negative.
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#### **pyroxsulam (ISO):**

Germ cell mutagenicity - Assessment	: In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.
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#### **Sodium lignosulfonate:**

Germ cell mutagenicity - Assessment	: In vitro genetic toxicity studies were negative.
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#### **citric acid:**

Germ cell mutagenicity - Assessment	: In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.
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### **Sodium N-methyl-N-oleoyltaurine:**

Germ cell mutagenicity - Assessment	: In vitro genetic toxicity studies were negative.
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### **Carcinogenicity**

#### **Components:**

#### **Substituted Quinoline Derivative:**

Carcinogenicity - Assessment	: For similar active ingredient(s)., Did not cause cancer in laboratory animals.
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#### **pyroxsulam (ISO):**

Carcinogenicity - Assessment	: There was equivocal evidence of carcinogenic activity in long-term bioassays. These effects are not believed to be relevant to humans.
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#### **citric acid:**

Carcinogenicity - Assessment	: Did not cause cancer in laboratory animals.
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#### **Kaolin:**

Carcinogenicity - Assessment	: Animal testing did not show any carcinogenic effects.
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### **Reproductive toxicity**

#### **Components:**

#### **Substituted Quinoline Derivative:**

Reproductive toxicity - Assessment	: In animal studies, did not interfere with reproduction. For similar active ingredient(s)., Did not cause birth defects or any other fetal effects in laboratory animals.
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### **pyroxsulam (ISO):**

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Did not cause birth defects or any other fetal effects in laboratory animals.

### **citric acid:**

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Did not cause birth defects or any other fetal effects in laboratory animals.

### **Sodium N-methyl-N-oleoyltaurine:**

Reproductive toxicity - Assessment : Screening studies suggest that this material does not affect reproduction.

### **STOT - single exposure**

#### **Product:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

#### **Components:**

#### **Substituted Quinoline Derivative:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

#### **citric acid:**

Assessment : Available data are inadequate to determine single exposure specific target organ toxicity.

#### **Kaolin:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

#### **Sodium N-methyl-N-oleoyltaurine:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

### **STOT - repeated exposure**

#### **Product:**

Assessment : Evaluation of available data suggests that this material is not an STOT-RE toxicant.

### **Repeated dose toxicity**

#### **Components:**

#### **Substituted Quinoline Derivative:**

Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

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### **pyroxsulam (ISO):**

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

### **Sodium lignosulfonate:**

Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

### **citric acid:**

Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

### **Kaolin:**

Remarks : Repeated excessive exposure to crystalline silica may cause silicosis, a progressive and disabling disease of the lungs.

### **Sodium N-methyl-N-oleoyltaurine:**

Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

### **Aspiration toxicity**

#### **Product:**

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

#### **Components:**

##### **Substituted Quinoline Derivative:**

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

##### **pyroxsulam (ISO):**

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

##### **Sodium lignosulfonate:**

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

##### **citric acid:**

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

##### **Kaolin:**

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

##### **Sodium N-methyl-N-oleoyltaurine:**

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

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### SECTION 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

##### Product:

Toxicity to fish	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 25.9 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to algae/aquatic plants	:	ErC50 (Lemna gibba): 0.0015 mg/l Exposure time: 7 d  NOEC (Lemna gibba): 0.0026 mg/l Exposure time: 7 d  EC50 (Pseudokirchneriella subcapitata (green algae)): 5.3 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to terrestrial organisms	:	LD50 (Colinus virginianus (Bobwhite quail)): > 2,000 mg/kg Exposure time: 14 d Method: OECD Test Guideline 223  LD50 (Apis mellifera (bees)): > 0.156 mg/kg Exposure time: 48 h End point: Acute oral toxicity Method: OECD Test Guideline 213  LD50 (Apis mellifera (bees)): > 0.2 mg/kg Exposure time: 48 h End point: Acute contact toxicity Method: OECD Test Guideline 214

#### Ecotoxicology Assessment

Acute aquatic toxicity	:	Very toxic to aquatic life.
Chronic aquatic toxicity	:	Very toxic to aquatic life with long lasting effects.

##### Components:

##### **Substituted Quinoline Derivative:**

Toxicity to fish	:	LC50 (Sheepshead minnow (Cyprinodon variegatus)): > 120 mg/l Exposure time: 96 h Test Type: static test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Oyster shell (Crassostrea virginica)): > 110 mg/l Exposure time: 96 h  LC50 (Mysid shrimp (Mysidopsis bahia)): > 120 mg/l Exposure time: 96 h Test Type: semi-static test
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 66.5 mg/l Exposure time: 72 h Test Type: static test

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- ErC50 (*Skeletonema costatum* (marine diatom)): 12.5 mg/l  
Exposure time: 96 h
- ErC50 (*Anabaena flos-aquae* (cyanobacterium)): 23.7 mg/l  
Exposure time: 96 h
- Toxicity to fish (Chronic toxicity) : NOEC (*Pimephales promelas* (fathead minnow)): 0.143 mg/l  
Exposure time: 33 d  
Test Type: flow-through test
- Toxicity to terrestrial organisms : Remarks: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
- oral LD50 (*Colinus virginianus* (Bobwhite quail)): > 2250 mg/kg bodyweight.
- contact LD50 (*Apis mellifera* (bees)): > 200 µg/bee  
Exposure time: 48 h
- pyroxsulam (ISO):**
- Toxicity to fish : LC50 (*Oncorhynchus mykiss* (rainbow trout)): > 87.0 mg/l  
Exposure time: 96 h  
Test Type: static test  
Method: OECD Test Guideline 203 or Equivalent
- Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): > 100 mg/l  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202 or Equivalent
- Toxicity to algae/aquatic plants : EC50 (*Lemna minor* (duckweed)): 0.00257 mg/l  
End point: Biomass  
Exposure time: 7 d  
Method: OECD 221.
- M-Factor (Acute aquatic toxicity) : 100
- Toxicity to fish (Chronic toxicity) : NOEC (*Pimephales promelas* (fathead minnow)): 3.2 - 10.1 mg/l  
End point: survival  
Exposure time: 40 d  
Test Type: flow-through test
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna* (Water flea)): 10.4 mg/l  
End point: survival  
Exposure time: 21 d  
Test Type: static test
- M-Factor (Chronic aquatic toxicity) : 100
- Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l  
Exposure time: 3 h
- Toxicity to soil dwelling organisms : LC50 (*Eisenia fetida* (earthworms)): > 10,000 mg/kg  
Exposure time: 14 d
- Toxicity to terrestrial organisms : LC50 (*Colinus virginianus* (Bobwhite quail)): > 5000 mg/kg diet.  
Exposure time: 8 d

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LD50 (*Colinus virginianus* (Bobwhite quail)): > 2000 mg/kg bodyweight.

oral LD50 (*Apis mellifera* (bees)): > 107.4 micrograms/bee  
Exposure time: 48 h

contact LD50 (*Apis mellifera* (bees)): > 100 micrograms/bee  
Exposure time: 48 h

### Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

### Sodium lignosulfonate:

Toxicity to fish : Remarks: 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)): 615 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (*Daphnia magna* (Water flea)): > 100 mg/l  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202 or Equivalent  
Remarks: For this family of materials:

### citric acid:

Toxicity to fish : Remarks: 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)): 1,516 mg/l  
Exposure time: 96 h  
Test Type: static test  
Method: OECD Test Guideline 203 or Equivalent

LC50 (*Leuciscus idus* (Golden orfe)): 440 - 760 mg/l  
Exposure time: 96 h  
Test Type: static test  
Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): > 1,535 mg/l  
Exposure time: 24 h  
Test Type: Static  
Method: OECD Test Guideline 202 or Equivalent

### Sodium N-methyl-N-oleoyltaurine:

Toxicity to fish : LC50 (*Danio rerio* (zebra fish)): 1.32 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 5.76 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (*Desmodesmus subspicatus* (green algae)): 197 mg/l  
Exposure time: 72 h



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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 2 mg/l  
Exposure time: 21 d

### Persistence and degradability

#### Components:

##### **pyroxsulam (ISO):**

Biodegradability : aerobic  
Biodegradation: 20 - 30 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B or Equivalent  
Remarks: 10-day Window: Fail

##### **Sodium lignosulfonate:**

Biodegradability : Remarks: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Biodegradation: < 5 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301E  
Remarks: 10-day Window: Fail

Photodegradation : Rate constant: 1.089E-10 cm<sup>3</sup>/s  
Method: Estimated.

##### **citric acid:**

Biodegradability : Remarks: Material is expected to be readily biodegradable. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

aerobic  
Result: Readily biodegradable.  
Biodegradation: 97 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B or Equivalent  
Remarks: 10-day Window: Pass

aerobic  
Biodegradation: 98 %  
Exposure time: 7 d  
Method: OECD Test Guideline 302B or Equivalent  
Remarks: 10-day Window: Not applicable

##### **Sodium N-methyl-N-oleoyltaurine:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 80 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B or Equivalent  
Remarks: 10-day Window: Pass  
Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

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### Bioaccumulative potential

#### Components:

##### **Substituted Quinoline Derivative:**

Partition coefficient: n-octanol/water : log Pow: 2.12  
Method: Estimated.  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

##### **pyroxsulam (ISO):**

Partition coefficient: n-octanol/water :  
log Pow: -1.01  
Method: Measured  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

##### **Sodium lignosulfonate:**

Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): 3.2

Partition coefficient: n-octanol/water :  
log Pow: -3.45  
Method: Estimated.  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

##### **citric acid:**

Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): 0.01  
Method: Measured

Partition coefficient: n-octanol/water : log Pow: -1.72 (20 °C)  
Method: Measured  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

##### **Sodium N-methyl-N-oleoyltaurine:**

Partition coefficient: n-octanol/water : Pow: 1.36 (20 °C)  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

##### **Balance:**

Partition coefficient: n-octanol/water : Remarks: No relevant data found.

### Mobility in soil

#### Components:

##### **Substituted Quinoline Derivative:**

Distribution among environmental compartments : Koc: 206  
Method: Estimated.  
Remarks: Potential for mobility in soil is medium (Koc between 150 and 500).

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### pyroxsulam (ISO):

Distribution among environmental compartments : Koc: <= 42  
Method: Estimated.  
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

### Sodium lignosulfonate:

Distribution among environmental compartments : Koc: > 99999  
Method: Estimated.  
Remarks: Expected to be relatively immobile in soil (Koc > 5000).

### citric acid:

Distribution among environmental compartments : Remarks: No relevant data found.

### Balance:

Distribution among environmental compartments : Remarks: No relevant data found.

### Other adverse effects

### Components:

#### Substituted Quinoline Derivative:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer

#### pyroxsulam (ISO):

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer

#### Sodium lignosulfonate:

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

#### citric acid:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

#### Kaolin:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

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Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

### Sodium N-methyl-N-oleoyltaurine:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

### Balance:

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.  
If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### UNRTDG

UN number : UN 3077  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(Pyroxsulam)  
Class : 9  
Packing group : III  
Labels : 9

#### IATA-DGR

UN/ID No. : UN 3077  
Proper shipping name : Environmentally hazardous substance, solid, n.o.s.  
(Pyroxsulam)  
Class : 9  
Packing group : III  
Labels : Miscellaneous

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Packing instruction (cargo aircraft) : 956

Packing instruction (passenger aircraft) : 956

### IMDG-Code

UN number : UN 3077

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pyroxsulam)

Class : 9

Packing group : III

Labels : 9

EmS Code : F-A, S-F

Marine pollutant : yes

Remarks : Stowage category A

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

### National Regulations

#### TDG

UN number : UN 3077

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pyroxsulam)

Class : 9

Packing group : III

Labels : 9

ERG Code : 171

Marine pollutant : yes(Pyroxsulam)

### Further information

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA Special provision A197, and ADR/RID special provision 375.

For Canadian Ground transportation TDG Exemption: 1.45.1 Marine Pollutants (Part 3, Documentation, and Part 4, Dangerous Goods Safety Marks, do not apply if they are in transport solely on land by road vehicle or railway vehicle).

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

## SECTION 15. REGULATORY INFORMATION

### The components of this product are reported in the following inventories:

DSL : This product contains components that are not listed on the Canadian DSL nor NDSL.

Pest Control Products Act ( PCPA ) Registration Number : 33290

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Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act (PCPA). There are Canada-specific environmental requirements for handling, use, and disposal of this pest control product that are indicated on the label. These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control products label:

PCPA Label Hazard Communications:

Read the label and booklet before using. Keep out of reach of children.

### CAUTION EYE IRRITANT

This product is toxic to:

Aquatic organisms

Non-target terrestrial plants

## SECTION 16. OTHER INFORMATION

### 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.

### Full text of other abbreviations

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
ACGIH / TWA	:	8-hour, time-weighted average
CA AB OEL / TWA	:	8-hour Occupational exposure limit
CA BC OEL / TWA	:	8-hour time weighted average
CA QC OEL / TWA	:	Time-weighted average exposure value
Dow IHG / TWA	:	Time Weighted Average (TWA):

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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;

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n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

Revision Date : 06/09/2022  
Date format : mm/dd/yyyy

Product code: GF-3361

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

CA / 6N

**Product name:** TRIDEM™ B Herbicide

**Issue Date:** 11/25/2020

CORTEVA AGRISCIENCE CANADA COMPANY encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container.

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## 1. IDENTIFICATION

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**Product name:** TRIDEM™ B Herbicide

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

**Identified uses:** End use herbicide product

**COMPANY IDENTIFICATION**

CORTEVA AGRISCIENCE CANADA COMPANY

#2450, 215 - 2ND STREET S.W.

CALGARY AB, T2P 1M4

CANADA

**Customer Information Number**

: 800-667-3852

**E-mail address**

: solutions@corteva.com

**EMERGENCY TELEPHONE**

**24-Hour Emergency Contact**

: 1-888-226-8832

**Local Emergency Contact**

: 1-888-226-8832

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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).

Flammable liquids - Category 3

Skin irritation - Category 2

Eye irritation - Category 2A

Skin sensitisation - Category 1

Specific target organ toxicity - single exposure - Category 3

**Label elements**

**Hazard pictograms**



Signal Word: **WARNING!**



**Hazards**

Flammable liquid and vapor.  
Causes skin irritation.  
May cause an allergic skin reaction.  
Causes serious eye irritation.  
May cause respiratory irritation.  
May cause drowsiness or dizziness.

**Precautionary statements****Prevention**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Keep container tightly closed.  
Ground and bond container and receiving equipment.  
Use explosion-proof electrical/ ventilating/ lighting equipment.  
Use non-sparking tools.  
Take action to prevent static discharges.  
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
Wash skin thoroughly after handling.  
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 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. Call a POISON CENTER/ doctor if you feel unwell.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If skin irritation or rash occurs: Get medical advice/ attention.  
If eye irritation persists: Get medical advice/ attention.  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage**

Store in a well-ventilated place. Keep container tightly closed.  
Store in a well-ventilated place. Keep cool.  
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.

Component	CASRN	Concentration
Florasulam	145701-23-1	0.5%
Fluroxypyr 1-methylheptyl ester	81406-37-3	14.45%
Solvent naphtha (petroleum), light aromatic	64742-95-6	>= 30.0 - < 40.0 %

1,2,4-Trimethylbenzene	95-63-6	>= 3.0 - < 10.0 %
Propylene glycol	57-55-6	>= 3.0 - < 10.0 %
1,3,5-Trimethylbenzene	108-67-8	>= 1.0 - < 3.0 %
Cumene	98-82-8	>= 1.0 - < 3.0 %
Xylene	1330-20-7	>= 0.3 - < 1.0 %
Balance	Not available	>= 30.0 - < 40.0 %

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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. If breathing is difficult, oxygen should be administered by qualified personnel.

**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 available in work area.

**Eye contact:** Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

**Ingestion:** No emergency medical treatment necessary.

#### 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:** Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. 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. Skin contact may aggravate preexisting dermatitis. Repeated excessive exposure may aggravate preexisting lung disease.

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## 5. FIRE-FIGHTING MEASURES

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**Suitable extinguishing media:** Water. 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:** No data available

**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: Nitrogen oxides. Hydrogen fluoride. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** May produce flash fire. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic fumes. Dense smoke is produced when product burns.

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Eliminate ignition sources. 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:** Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Vapor explosion hazard. Keep out of sewers. 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:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact the company for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

## 7. HANDLING AND STORAGE

**Precautions for safe handling:** Keep out of reach of children. Keep away from heat, sparks and flame. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Do not swallow. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. No smoking, open flames or sources of ignition in handling and storage area. Electrically ground and bond all equipment. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers.

**Conditions for safe storage:** Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies. Minimize sources of ignition, such as static build-up, heat, spark or flame.

## 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/Notation
Fluroxypyr 1-methylheptyl ester	Dow IHG	TWA	10 mg/m3
Solvent naphtha (petroleum), light aromatic	ACGIH	TWA	200 mg/m3 , total hydrocarbon vapor
	Dow IHG	TWA	100 mg/m3
	Dow IHG	STEL	300 mg/m3
	CA AB OEL	TWA	200 mg/m3 , total hydrocarbon vapor
1,2,4-Trimethylbenzene	ACGIH	TWA	25 ppm
	CA BC OEL	TWA	25 ppm
	CA AB OEL	TWA	123 mg/m3 25 ppm
	CA QC OEL	TWAEV	123 mg/m3 25 ppm
Propylene glycol	US WEEL	TWA	10 mg/m3
	CA ON OEL	TWAEV Total	155 mg/m3 50 ppm
	CA ON OEL	TWAEV	10 mg/m3
	CA ON OEL	TWA	155 mg/m3 50 ppm
	CA ON OEL	TWA	10 mg/m3
	CA ON OEL	TWA Vapour and aerosols	155 mg/m3 50 ppm
	CA ON OEL	TWA aerosol	10 mg/m3
1,3,5-Trimethylbenzene	ACGIH	TWA	25 ppm
	CA BC OEL	TWA	25 ppm
	CA AB OEL	TWA	123 mg/m3 25 ppm
	CA QC OEL	TWAEV	123 mg/m3 25 ppm
Cumene	ACGIH	TWA	50 ppm
	CA AB OEL	TWA	246 mg/m3 50 ppm
	CA QC OEL	TWAEV	246 mg/m3 50 ppm

Xylene	ACGIH	TWA	BEI
	ACGIH	STEL	BEI
	ACGIH	TWA	100 ppm
	ACGIH	STEL	150 ppm
	CA AB OEL	STEL	651 mg/m3 150 ppm
	CA AB OEL	TWA	434 mg/m3 100 ppm
	CA QC OEL	TWAEV	434 mg/m3 100 ppm
	CA QC OEL	STEV	651 mg/m3 150 ppm
	CA BC OEL	TWA	100 ppm
	CA BC OEL	STEL	150 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

#### Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Xylene	1330-20-7	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g creatinine	ACGIH BEI

#### 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: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Styrene/butadiene rubber. Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Chlorinated polyethylene. Neoprene. 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. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying 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	White
Odor	Gasoline-like
Odor Threshold	No data available
pH	4.5 1% <i>pH Electrode</i>
Melting point/range	Not applicable
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point	<b>closed cup</b> 57.8 °C <i>Closed Cup</i>
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not applicable to liquids
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	No data available
Water solubility	Emulsion
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No test data available
Kinematic Viscosity	180 - 2000 mm <sup>2</sup> /s at 20 °C
Explosive properties	No data available
Oxidizing properties	No significant increase (>5C) in temperature.
Liquid Density	0.9861 g/ml at 20 °C <i>OECD 109</i>
Molecular weight	No 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 dangerous reaction known under conditions of normal use.

**Chemical stability:** Thermally stable at typical use temperatures.

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Can coagulate if frozen. Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

**Incompatible materials:** Avoid contact with: Strong oxidizers. Addition of chemicals may cause phase separation.

**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: Nitrogen oxides. hydrogen chloride Hydrogen fluoride carbon dioxide Carbon monoxide Toxic gases are released during decomposition.

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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**

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product:

LD50, Rat, female, > 5,000 mg/kg

#### **Acute dermal toxicity**

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

As product:

LD50, Rat, > 5,000 mg/kg

#### **Acute inhalation toxicity**

Prolonged exposure is not expected to cause adverse effects. Excessive exposure may cause 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.

As product:

LC50, Rat, 4 Hour, Mist, > 5.52 mg/l No deaths occurred at this concentration.

### **Skin corrosion/irritation**

Brief contact may cause slight skin irritation with local redness.

May cause drying and flaking of the skin.

Effects may be slow to heal.

### **Serious eye damage/eye irritation**

May cause moderate eye irritation which may be slow to heal.

May cause slight corneal injury.

### **Sensitization**

Has demonstrated the potential for contact allergy in mice.

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

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

May cause respiratory irritation.

May cause drowsiness or dizziness.

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

For the active ingredient(s):

Florasulam.

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

Kidney.

For the solvent(s):

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

Respiratory tract.

Eye.

Lung.

Blood.

Kidney

#### **Carcinogenicity**

For the minor component(s): Has caused cancer in laboratory animals. However, the relevance of this to humans is unknown. For the active ingredient(s): Florasulam. For similar active ingredient(s): Fluroxypyr. Did not cause cancer in laboratory animals.

#### **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.

For the solvent(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Has caused birth defects in laboratory animals only at doses producing severe toxicity in the mother.

#### **Reproductive toxicity**

For the solvent(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. For the active ingredient(s): In animal studies, did not interfere with reproduction.

#### **Mutagenicity**

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

#### **Aspiration Hazard**

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

#### **Carcinogenicity**

##### **Component**

**Solvent naphtha (petroleum),  
light aromatic**

##### **List**

ACGIH

##### **Classification**

A3: Confirmed animal carcinogen with  
unknown relevance to humans.

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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**

LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, 18.6 mg/l

##### **Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), semi-static test, 48 Hour, 27 - 35 mg/l

##### **Acute toxicity to algae/aquatic plants**

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).

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate inhibition, 1.730 mg/l

ErC50, Myriophyllum spicatum, static test, 14 d, Growth rate inhibition, 0.235 mg/l



ErC50, Lemna gibba, 7 d, 0.156 mg/l

NOEC, Lemna gibba, 7 d, 0.0274 mg/l

**Toxicity to Above Ground Organisms**

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

contact LD50, Apis mellifera (bees), 48 Hour, > 200micrograms/bee

oral LD50, Apis mellifera (bees), 48 Hour, > 215.8micrograms/bee

oral LD50, Colinus virginianus (Bobwhite quail), 2,000 mg/kg

**Toxicity to soil-dwelling organisms**

LC50, Eisenia fetida (earthworms), 14 d, survival, 320 mg/kg

**Persistence and degradability****Florasulam**

**Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

**Biodegradation:** 2 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301B or Equivalent

**Theoretical Oxygen Demand:** 0.85 mg/mg

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	0.012 mg/mg

**Stability in Water (1/2-life)**

, > 30 d

**Photodegradation**

**Atmospheric half-life:** 1.82 Hour

**Method:** Estimated.

**Fluroxypyr 1-methylheptyl ester**

**Biodegradability:** Material is not readily biodegradable according to OECD/EEC guidelines.

10-day Window: Fail

**Biodegradation:** 32 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 2.2 mg/mg

**Stability in Water (1/2-life)**

Hydrolysis, half-life, 454 d

**Solvent naphtha (petroleum), light aromatic**

**Biodegradability:** For the major component(s): Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). For some component(s): Biodegradation under aerobic static laboratory conditions is low (BOD20 or BOD28/ThOD between 2.5 and 10%).

**1,2,4-Trimethylbenzene**

**Biodegradability:** Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

**Biodegradation:** 100 %

**Exposure time:** 1 d

**Theoretical Oxygen Demand:** 3.19 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 0.641 d

**Method:** Estimated.

**Propylene glycol**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation may occur under anaerobic conditions (in the absence of oxygen).

10-day Window: Pass

**Biodegradation:** 81 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301F or Equivalent

10-day Window: Not applicable

**Biodegradation:** 96 %

**Exposure time:** 64 d

**Method:** OECD Test Guideline 306 or Equivalent

**Theoretical Oxygen Demand:** 1.68 mg/mg

**Chemical Oxygen Demand:** 1.53 mg/mg

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	69.000 %
10 d	70.000 %
20 d	86.000 %

**Photodegradation**

**Atmospheric half-life:** 10 Hour

**Method:** Estimated.

**1,3,5-Trimethylbenzene**

**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: Not applicable

**Biodegradation:** 0 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301C or Equivalent

10-day Window: Not applicable

**Biodegradation:** 50 %

**Exposure time:** 4.4 d

**Method:** Calculated.

**Theoretical Oxygen Demand:** 3.19 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 3.7 Hour

**Method:** Estimated.

**Cumene**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

**Biodegradation:** 70 %

**Exposure time:** 20 d

**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 3.20 mg/mg Estimated.

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	40%
10 d	62%
20 d	70%

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 1.55 d

**Method:** Estimated.

**Xylene**

**Biodegradability:** Material is expected to be readily biodegradable.

10-day Window: Pass

**Biodegradation:** > 60 %

**Exposure time:** 10 d

**Method:** OECD Test Guideline 301F or Equivalent

**Theoretical Oxygen Demand:** 3.17 mg/mg

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	37.000 %
10 d	58.000 %
20 d	72.000 %

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 19.7 Hour

**Method:** Estimated.

**Balance**

**Biodegradability:** No relevant data found.

**Bioaccumulative potential****Florasulam**

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

**Partition coefficient: n-octanol/water(log Pow):** -1.22

**Bioconcentration factor (BCF):** 0.8 Fish 28 d Measured

**Fluroxypyr 1-methylheptyl ester**

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

**Partition coefficient: n-octanol/water(log Pow):** 5.04 Measured

**Bioconcentration factor (BCF):** 26 Oncorhynchus mykiss (rainbow trout) Measured

**Solvent naphtha (petroleum), light aromatic**

**Bioaccumulation:** For the major component(s): Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). For the minor component(s):

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

**1,2,4-Trimethylbenzene**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient: n-octanol/water(log Pow):** 3.63 Measured

**Bioconcentration factor (BCF):** 33 - 275 Cyprinus carpio (Carp) 56 d Measured

**Propylene glycol**

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

**Partition coefficient: n-octanol/water(log Pow):** -1.07 Measured

**Bioconcentration factor (BCF):** 0.09 Estimated.

**1,3,5-Trimethylbenzene**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient: n-octanol/water(log Pow):** 3.42 Measured

**Bioconcentration factor (BCF):** 161 Pimephales promelas (fathead minnow) Measured

**Cumene**

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

**Partition coefficient: n-octanol/water(log Pow):** 3.4 - 3.7 Measured

**Bioconcentration factor (BCF):** 35.5 Fish Measured

**Xylene**

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

**Partition coefficient: n-octanol/water(log Pow):** 3.12 Measured

**Bioconcentration factor (BCF):** 25.9 Rainbow trout (Salmo gairdneri) Measured

**Balance**

**Bioaccumulation:** No relevant data found.

**Mobility in soil****Florasulam**

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

**Partition coefficient (Koc):** 4 - 54

**Fluroxypyr 1-methylheptyl ester**

Expected to be relatively immobile in soil (Koc > 5000).

**Partition coefficient (Koc):** 6200 - 43000

**Solvent naphtha (petroleum), light aromatic**

For the major component(s):

Potential for mobility in soil is low (Koc between 500 and 2000).

**1,2,4-Trimethylbenzene**

Potential for mobility in soil is low (Koc between 500 and 2000).

**Partition coefficient (Koc):** 720 Estimated.

**Propylene 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.

**1,3,5-Trimethylbenzene**

Potential for mobility in soil is low (Koc between 500 and 2000).

**Partition coefficient (Koc):** 741.65 Estimated.

**Cumene**

Potential for mobility in soil is low (Koc between 500 and 2000).

**Partition coefficient (Koc):** 800 - 2800 Estimated.

**Xylene**

Potential for mobility in soil is medium (Koc between 150 and 500).

**Partition coefficient (Koc):** 443 Estimated.

**Balance**

No relevant data found.

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**13. DISPOSAL CONSIDERATIONS**

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**Disposal methods:** If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

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**14. TRANSPORT INFORMATION**

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**TDG**

<b>Proper shipping name</b>	FLAMMABLE LIQUID, N.O.S.(Petroleum Naphtha, 1,2,4-Trimethylbenzene)
<b>UN number</b>	UN 1993
<b>Class</b>	3
<b>Packing group</b>	III
<b>Marine pollutant</b>	Petroleum Naphtha, 1,2,4-Trimethylbenzene

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

<b>Proper shipping name</b>	FLAMMABLE LIQUID, N.O.S.(Petroleum Naphtha, 1,2,4-Trimethylbenzene)
<b>UN number</b>	UN 1993
<b>Class</b>	3
<b>Packing group</b>	III
<b>Marine pollutant</b>	Petroleum Naphtha, 1,2,4-Trimethylbenzene
<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>	Flammable liquid, n.o.s.(Petroleum Naphtha, 1,2,4-Trimethylbenzene)
<b>UN number</b>	UN 1993
<b>Class</b>	3
<b>Packing group</b>	III

**Further information:**

NOT REGULATED PER TDG EXEMPTION 1.33 FOR ROAD OR RAIL SHIPMENTS 450L OR LESS

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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**National Fire Code of Canada**

Class II

**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.

**Pest Control Products Act**

Pest Control Products Act ( PCPA ) Registration Number: 33440

Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act (PCPA). There are Canada-specific environmental requirements for handling, use, and disposal of this pest control product that are indicated on the label. These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control products label:

PCPA Label Hazard Communications:

Read the label and booklet before using. Keep out of reach of children.

WARNING EYE AND SKIN IRRITANT

This product is toxic to:

Non-target terrestrial plants

Aquatic organisms

## 16. OTHER INFORMATION

### Hazard Rating System

#### NFPA

Health	Flammability	Instability
1	2	0

### Revision

Identification Number: 97071447 / Issue Date: 11/25/2020 / Version: 6.0

DAS Code: GF-2257

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)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
BEI	Biological Exposure Indices
CA AB OEL	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	Canada. British Columbia OEL
CA ON OEL	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
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
TWAEV	time-weighted average exposure value
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; AIIIC - 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; 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.

CORTEVA AGRISCIENCE CANADA COMPANY 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



**Product name:** BINDEM™ UTILITY MODIFIER

**Issue Date:** 11/17/2020

CORTEVA AGRISCIENCE CANADA COMPANY encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container.

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## 1. IDENTIFICATION

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**Product name:** BINDEM™ UTILITY MODIFIER

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

**Identified uses:** Adjuvants

### COMPANY IDENTIFICATION

CORTEVA AGRISCIENCE CANADA COMPANY

#2450, 215 - 2ND STREET S.W.

CALGARY AB, T2P 1M4

CANADA

**Customer Information Number**

: 800-667-3852

**E-mail address**

: solutions@corteva.com

### EMERGENCY TELEPHONE

**24-Hour Emergency Contact**

: 1-888-226-8832

**Local Emergency Contact**

: 1-888-226-8832

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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).

Flammable liquids - Category 3

Acute toxicity - Category 4 - Oral

Skin irritation - Category 2

Serious eye damage - Category 1

Carcinogenicity - Category 2

Specific target organ toxicity - single exposure - Category 3

Aspiration hazard - Category 1

### Label elements

#### Hazard pictograms



Signal Word: **DANGER!**

**Hazards**

Flammable liquid and vapor.  
Harmful if swallowed.  
May be fatal if swallowed and enters airways.  
Causes skin irritation.  
Causes serious eye damage.  
May cause respiratory irritation.  
May cause drowsiness or dizziness.  
Suspected of causing cancer.

**Precautionary statements****Prevention**

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Keep container tightly closed.  
Ground and bond container and receiving equipment.  
Use explosion-proof electrical/ ventilating/ lighting equipment.  
Use non-sparking tools.  
Take action to prevent static discharges.  
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.  
Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response**

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.  
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. Call a POISON CENTER/ doctor if you feel unwell.  
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 exposed or concerned: Get medical advice/ attention.  
Do NOT induce vomiting.  
If skin irritation occurs: Get medical advice/ attention.  
In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

**Storage**

Store in a well-ventilated place. Keep container tightly closed.  
Store locked up.

**Disposal**

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

**Other hazards**

No data available

**Further information**

The values listed below represent the percentages of ingredients of unknown toxicity.  
The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 14.4 %

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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Component	CASRN	Concentration
Solvent naphtha (petroleum), light aromatic	64742-95-6	>= 20.0 - < 25.0 %
Isobutanol	78-83-1	>= 3.0 - < 10.0 %
1,2,4-Trimethylbenzene	95-63-6	>= 3.0 - < 10.0 %
Xylene	1330-20-7	>= 0.3 - < 1.0 %
Cumene	98-82-8	>= 0.1 - < 0.3 %
Balance	Not available	> 50.0 %

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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 effects occur, consult a physician.

**Skin contact:** Wash off with plenty of water.

**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:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**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. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

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### 5. FIRE-FIGHTING MEASURES

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**Suitable extinguishing media:** Water fog or fine spray. Carbon dioxide fire extinguishers. Foam. Dry chemical fire extinguishers. 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.

**Unusual Fire and Explosion Hazards:** Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. 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. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Soak thoroughly with water to cool and prevent re-ignition. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Cool surroundings with water to localize fire zone. 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. If protective equipment is not available or not used, fight fire from a protected location or safe distance. 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:** Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Ventilate area of leak or spill. Keep upwind of spill. No smoking in area. 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:** Small spills: Contain spilled material if possible. Absorb with materials such as: Clay. Sand. Dirt. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact the company for clean-up assistance. 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 away from heat, sparks and flame. Keep out of reach of children. Do not swallow. Avoid breathing vapor or mist. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Do not store near food, foodstuffs, drugs or potable water supplies. Store in a cool and dry place. Store in original container. Keep container tightly closed.

## 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/Notation
Solvent naphtha (petroleum), light aromatic	ACGIH	TWA	200 mg/m <sup>3</sup> , total hydrocarbon vapor
	CA AB OEL	TWA	200 mg/m <sup>3</sup> , total hydrocarbon vapor
Isobutanol	ACGIH	TWA	50 ppm
	Corteva OEL	STEL	50 ppm
	Corteva OEL	TWA	75 ppm
	CA AB OEL	TWA	152 mg/m <sup>3</sup> 50 ppm
	CA BC OEL	TWA	50 ppm
	CA ON OEL	TWAEV	150 mg/m <sup>3</sup> 50 ppm
	CA QC OEL	TWAEV	152 mg/m <sup>3</sup> 50 ppm
1,2,4-Trimethylbenzene	ACGIH	TWA	25 ppm
	CA BC OEL	TWA	25 ppm
	CA AB OEL	TWA	123 mg/m <sup>3</sup> 25 ppm
	CA QC OEL	TWAEV	123 mg/m <sup>3</sup> 25 ppm
Xylene	ACGIH	TWA	BEI
	ACGIH	STEL	BEI
	ACGIH	TWA	100 ppm
	ACGIH	STEL	150 ppm
	CA AB OEL	STEL	651 mg/m <sup>3</sup> 150 ppm
	CA AB OEL	TWA	434 mg/m <sup>3</sup> 100 ppm
	CA QC OEL	TWAEV	434 mg/m <sup>3</sup> 100 ppm
	CA QC OEL	STEV	651 mg/m <sup>3</sup> 150 ppm
	CA BC OEL	TWA	100 ppm
	CA BC OEL	STEL	150 ppm
Cumene	ACGIH	TWA	50 ppm
	CA AB OEL	TWA	246 mg/m <sup>3</sup> 50 ppm
	CA BC OEL	TWA	25 ppm
	CA BC OEL	STEL	75 ppm
	CA QC OEL	TWAEV	246 mg/m <sup>3</sup> 50 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

### Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Xylene	1330-20-7	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g creatinine	ACGIH BEI

**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.

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. 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"). Viton. 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**

<b>Physical state</b>	Liquid
<b>Color</b>	yellow
<b>Odor</b>	aromatic
<b>Odor Threshold</b>	No data available
<b>pH</b>	No data available
<b>Melting point/range</b>	No data available
<b>Freezing point</b>	No data available
<b>Boiling point (760 mmHg)</b>	No data available
<b>Flash point</b>	<b>closed cup</b> 44 °C
<b>Evaporation Rate (Butyl Acetate = 1)</b>	No data available
<b>Flammability (solid, gas)</b>	Not Applicable
<b>Lower explosion limit</b>	No data available
<b>Upper explosion limit</b>	No data available
<b>Vapor Pressure</b>	No data available
<b>Relative Vapor Density (air = 1)</b>	No data available
<b>Relative Density (water = 1)</b>	No data available
<b>Water solubility</b>	No data available
<b>Partition coefficient: n-octanol/water</b>	No data available

Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Liquid Density	0.982 g/ml
Molecular weight	No 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 dangerous reaction known under conditions of normal use.

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

**Possibility of hazardous reactions:** Not likely to occur.

**Conditions to avoid:** Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid direct sunlight or ultraviolet sources.

**Incompatible materials:** Avoid contact with: Strong oxidizers.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials.

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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. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):  
LD50, Rat, > 500 mg/kg Estimated.

#### Acute dermal toxicity

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

As product:

Based on information for component(s):  
LD50, Rat, > 5,000 mg/kg Estimated.

#### Acute inhalation toxicity

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

As product: The LC50 has not been determined.

**Skin corrosion/irritation**

Brief contact may cause skin irritation with local redness.

Prolonged or repeated exposure may cause defatting of the skin leading to drying or flaking of skin.

**Serious eye damage/eye irritation**

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

**Sensitization**

For skin sensitization:

Based on information for component(s):

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

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

May cause respiratory irritation.

May cause drowsiness or dizziness.

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

Based on information for component(s):

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

Liver

Central nervous system.

Observations in animals include:

Anesthetic or narcotic effects.

**Carcinogenicity**

For the solvent(s): Has caused cancer in laboratory animals. However, the relevance of this to humans is unknown.

**Teratogenicity**

For the minor component(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects. Available data are inadequate for evaluation of maternal toxicity.

**Reproductive toxicity**

Based on information for component(s): In animal studies, did not interfere with reproduction.

**Mutagenicity**

Based on information for component(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard**

May be fatal if swallowed and enters airways.

**COMPONENTS INFLUENCING TOXICOLOGY:****Solvent naphtha (petroleum), light aromatic****Acute inhalation toxicity**

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

Maximum attainable concentration. LC50, Rat, 4 Hour, dust/mist, 6.193 mg/l



**Isobutanol****Acute inhalation toxicity**

Prolonged excessive exposure may cause adverse effects. Vapor may cause irritation of the upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. May cause central nervous system effects.

LC50, Rat, male and female, 6 Hour, vapour, > 28.2 mg/l

LC50, Rat, male and female, 4 Hour, vapour, > 8000 ppm

**1,2,4-Trimethylbenzene****Acute inhalation toxicity**

Prolonged excessive exposure may cause serious adverse effects, even death. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause central nervous system effects. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

LC50, Rat, 4 Hour, vapour, 18 mg/l

**Xylene****Acute inhalation toxicity**

LC50, Rat, 4 Hour, vapour, 27.5 mg/l

**Cumene****Acute inhalation toxicity**

LC50, Rat, 4 Hour, vapour, > 17.6 mg/l No deaths occurred at this concentration.

**Balance****Acute inhalation toxicity**

The LC50 has not been determined.

**Carcinogenicity****Component**

**Solvent naphtha (petroleum),  
light aromatic**

**Cumene**

**List**

ACGIH

IARC

US NTP

**Classification**

A3: Confirmed animal carcinogen with  
unknown relevance to humans.

Group 2B: Possibly carcinogenic to  
humans

Reasonably anticipated to be a human  
carcinogen

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**12. ECOLOGICAL INFORMATION**

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

**Toxicity****Solvent naphtha (petroleum), light aromatic****Acute toxicity to fish**

For similar material(s):

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 9.2 mg/l

**Acute toxicity to aquatic invertebrates**

For similar material(s):

EL50, Daphnia magna (Water flea), 48 Hour, 3.2 mg/l

**Acute toxicity to algae/aquatic plants**

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).

For similar material(s):

EL50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, 2.9 mg/l

For similar material(s):

NOEC, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, 1 mg/l

### **Isobutanol**

#### **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, 1,430 mg/l, OECD Test Guideline 203 or Equivalent

#### **Acute toxicity to aquatic invertebrates**

EC50, *Daphnia pulex* (Water flea), static test, 48 Hour, 1,100 mg/l

#### **Acute toxicity to algae/aquatic plants**

ErC50, *Pseudokirchneriella subcapitata* (green algae), static test, 72 Hour, Growth rate inhibition, 1,799 mg/l

#### **Toxicity to bacteria**

IC50, activated sludge, static test, 16 Hour, Growth inhibition, > 1,000 mg/l

#### **Chronic toxicity to aquatic invertebrates**

NOEC, *Daphnia magna* (Water flea), 21 d, number of offspring, 20 mg/l

MATC (Maximum Acceptable Toxicant Level), *Daphnia magna* (Water flea), 21 d, number of offspring, 28 mg/l

### **1,2,4-Trimethylbenzene**

#### **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, *Pimephales promelas* (fathead minnow), flow-through test, 96 Hour, 7.7 mg/l

#### **Acute toxicity to aquatic invertebrates**

EC50, *Daphnia magna* (Water flea), 48 Hour, 3.6 mg/l

#### **Acute toxicity to algae/aquatic plants**

EC50, *Desmodesmus subspicatus* (green algae), 96 Hour, 2.356 mg/l

### **Xylene**

#### **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), semi-static test, 96 Hour, 2.6 mg/l, OECD Test Guideline 203 or Equivalent

#### **Acute toxicity to aquatic invertebrates**

IC50, *Daphnia magna* (Water flea), 24 Hour, 1 - 4.7 mg/l, OECD Test Guideline 202 or Equivalent

#### **Acute toxicity to algae/aquatic plants**

ErC50, *Pseudokirchneriella subcapitata* (algae), Static, 73 Hour, Growth rate, 4.36 mg/l, OECD Test Guideline 201 or Equivalent

NOEC, *Pseudokirchneriella subcapitata* (green algae), 73 Hour, Growth rate, 0.44 mg/l, OECD Test Guideline 201 or Equivalent

**Chronic toxicity to fish**

NOEC, Oncorhynchus mykiss (rainbow trout), flow-through, 56 d, mortality, > 1.3 mg/l

**Cumene****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), semi-static test, 96 Hour, 2.7 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), static test, 48 Hour, 4.0 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

EbC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Biomass, 2.6 mg/l, OECD Test Guideline 201 or Equivalent

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 0.35 mg/l

**Toxicity to Above Ground Organisms**

oral LD50, redwing blackbird (Agelaius phoeniceus), > 98 mg/kg

**Balance****Acute toxicity to fish**

No relevant data found.

**Persistence and degradability****Solvent naphtha (petroleum), light aromatic**

**Biodegradability:** Material is expected to be readily biodegradable.

**Biodegradation:** 78 %

**Exposure time:** 28 d

**Isobutanol**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

**Biodegradation:** 70 - 80 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301D or Equivalent

10-day Window: Not applicable

**Biodegradation:** 90 %

**Exposure time:** 14 d

**Method:** OECD Test Guideline 301C or Equivalent

**Theoretical Oxygen Demand:** 2.59 mg/mg Estimated.

**Chemical Oxygen Demand:** 2.29 mg/mg Dichromate

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	64 - 69 %
10 d	73 - 79 %
20 d	72 - 81 %

**Photodegradation****Test Type:** Half-life (indirect photolysis)**Sensitization:** OH radicals**Atmospheric half-life:** 1.55 d**Method:** Estimated.**1,2,4-Trimethylbenzene****Biodegradability:** Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).**Biodegradation:** 100 %**Exposure time:** 1 d**Theoretical Oxygen Demand:** 3.19 mg/mg**Photodegradation****Test Type:** Half-life (indirect photolysis)**Sensitization:** OH radicals**Atmospheric half-life:** 0.641 d**Method:** Estimated.**Xylene****Biodegradability:** Material is expected to be readily biodegradable.

10-day Window: Pass

**Biodegradation:** > 60 %**Exposure time:** 10 d**Method:** OECD Test Guideline 301F or Equivalent**Theoretical Oxygen Demand:** 3.17 mg/mg**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	37.000 %
10 d	58.000 %
20 d	72.000 %

**Photodegradation****Test Type:** Half-life (indirect photolysis)**Sensitization:** OH radicals**Atmospheric half-life:** 19.7 Hour**Method:** Estimated.**Cumene****Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

**Biodegradation:** 70 %  
**Exposure time:** 20 d  
**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 3.20 mg/mg Estimated.

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	40%
10 d	62%
20 d	70%

**Photodegradation**  
**Test Type:** Half-life (indirect photolysis)  
**Sensitization:** OH radicals  
**Atmospheric half-life:** 1.55 d  
**Method:** Estimated.

**Balance**

**Biodegradability:** No relevant data found.

**Bioaccumulative potential**

**Solvent naphtha (petroleum), light aromatic**

**Bioaccumulation:** No relevant data found.

**Isobutanol**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).  
**Partition coefficient: n-octanol/water(log Pow):** 0.76 Measured  
**Bioconcentration factor (BCF):** 2 Estimated.

**1,2,4-Trimethylbenzene**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).  
**Partition coefficient: n-octanol/water(log Pow):** 3.63 Measured  
**Bioconcentration factor (BCF):** 33 - 275 Cyprinus carpio (Carp) 56 d Measured

**Xylene**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).  
**Partition coefficient: n-octanol/water(log Pow):** 3.12 Measured  
**Bioconcentration factor (BCF):** 25.9 Rainbow trout (Salmo gairdneri) Measured

**Cumene**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).  
**Partition coefficient: n-octanol/water(log Pow):** 3.4 - 3.7 Measured  
**Bioconcentration factor (BCF):** 35.5 Fish Measured

**Balance**

**Bioaccumulation:** No relevant data found.

**Mobility in soil****Solvent naphtha (petroleum), light aromatic**

No relevant data found.

**Isobutanol**

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

**Partition coefficient (Koc):** 2 Estimated.**1,2,4-Trimethylbenzene**

Potential for mobility in soil is low (Koc between 500 and 2000).

**Partition coefficient (Koc):** 720 Estimated.**Xylene**

Potential for mobility in soil is medium (Koc between 150 and 500).

**Partition coefficient (Koc):** 443 Estimated.**Cumene**

Potential for mobility in soil is low (Koc between 500 and 2000).

**Partition coefficient (Koc):** 800 - 2800 Estimated.**Balance**

No relevant data found.

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**13. DISPOSAL CONSIDERATIONS**

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**Disposal methods:** If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

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**14. TRANSPORT INFORMATION**

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**TDG**

<b>Proper shipping name</b>	FLAMMABLE LIQUID, N.O.S.(Solvent naphtha (petroleum), light aromatic, Isobutanol)
<b>UN number</b>	UN 1993
<b>Class</b>	3
<b>Packing group</b>	III
<b>Marine pollutant</b>	Solvent naphtha (petroleum), light aromatic

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

<b>Proper shipping name</b>	FLAMMABLE LIQUID, N.O.S.(Solvent naphtha (petroleum), light aromatic, Isobutanol)
<b>UN number</b>	UN 1993
<b>Class</b>	3
<b>Packing group</b>	III
<b>Marine pollutant</b>	Solvent naphtha (petroleum), light aromatic

**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):**

<b>Proper shipping name</b>	Flammable liquid, n.o.s. (Solvent naphtha (petroleum), light aromatic, Isobutanol)
<b>UN number</b>	UN 1993
<b>Class</b>	3
<b>Packing group</b>	III

**Further information:**

NOT REGULATED PER TDG EXEMPTION 1.33 FOR ROAD OR RAIL SHIPMENTS 450L OR LESS

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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**National Fire Code of Canada**

Class II

**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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**Hazard Rating System**

**NFPA**

Health	Flammability	Instability
3	2	1

**Revision**

Identification Number: 97064591 / Issue Date: 11/17/2020 / Version: 3.0

DAS Code: GF-3994

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)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
BEI	Biological Exposure Indices
CA AB OEL	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	Canada. British Columbia OEL
CA ON OEL	Canada. Ontario OELs
CA QC OEL	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants

Corteva OEL	Corteva Occupational Exposure Limit
STEL	15-minute occupational exposure limit
STEV	Short-term exposure value
TWA	8-hour time weighted average
TWAEV	time-weighted average exposure value

#### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; AIIIC - 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; 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.

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