

Product name: TANDEM™ A Herbicide

Issue Date: 12/21/2020

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.

## 1. IDENTIFICATION

Product name: TANDEM™ A 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@corveva.com

### EMERGENCY TELEPHONE

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

## 2. HAZARDS IDENTIFICATION

### Hazard classification

This product is hazardous under the criteria of the Hazardous Products Regulation (HPR) as implemented under the Workplace Hazardous Materials Information System (WHMIS 2015).

Acute toxicity - Category 4 - Inhalation

Skin irritation - Category 2

Eye irritation - Category 2A

Skin sensitization - Sub-category 1B

Carcinogenicity - Category 2

Aspiration hazard - Category 1

### Label elements

#### Hazard pictograms



Signal Word: **DANGER!**

**Hazards**

May be fatal if swallowed and enters airways.  
 Causes skin irritation.  
 May cause an allergic skin reaction.  
 Causes serious eye irritation.  
 Harmful if inhaled.  
 Suspected of causing cancer.

**Precautionary statements**

**Prevention**

Obtain special instructions before use.  
 Do not handle until all safety precautions have been read and understood.  
 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 SWALLOWED: Immediately call a POISON CENTER/ doctor.  
 IF ON SKIN: Wash with plenty of 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 exposed or concerned: Get medical advice/ attention.  
 Do NOT induce vomiting.  
 If skin irritation or rash occurs: Get medical advice/ attention.  
 If eye irritation persists: Get medical advice/ attention.

**Storage**

Store locked up.

**Disposal**

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

**Other hazards**

No data available

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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This product is a mixture.

<b>Component</b>	<b>CASRN</b>	<b>Concentration</b>
Pyroxsulam	422556-08-9	2.88%
Cloquintocet-mexyl	99607-70-2	8.64%
Solvent naphtha (petroleum), heavy aromatic	64742-94-5	71.5%

Benzenesulfonic acid, mono-C11- 13-branched alkyl derivs., calcium salts	68953-96-8	4.5%
Naphthalene	91-20-3	0.7%
Balance	Not available	11.78%

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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:** Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

#### Most important symptoms and effects, both acute and delayed:

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

#### Indication of any immediate medical attention and special treatment needed

**Notes to physician:** Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. 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. Repeated excessive exposure may aggravate preexisting lung disease. Skin contact may aggravate preexisting dermatitis.

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## 5. FIRE-FIGHTING MEASURES

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

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

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

**Hazardous combustion products:** 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: Sulfur oxides. Nitrogen oxides. Hydrogen fluoride. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. 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. Refer to section 7, Handling, for additional precautionary measures. Keep upwind of spill. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

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

## 7. HANDLING AND STORAGE

**Precautions for safe handling:** Keep out of reach of children. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Avoid breathing vapor or mist. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**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.

## 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
Pyroxsulam	Dow IHG	TWA	5 mg/m <sup>3</sup>
	Dow IHG	TWA	Skin Sensitizer
Solvent naphtha (petroleum), heavy aromatic	ACGIH	TWA	200 mg/m <sup>3</sup> , total hydrocarbon vapor
	Corteva OEL	TWA	100 mg/m <sup>3</sup>
	Corteva OEL	STEL	300 mg/m <sup>3</sup>
	CA AB OEL	TWA	200 mg/m <sup>3</sup> , total hydrocarbon vapor
Naphthalene	ACGIH	TWA	10 ppm
	CA AB OEL	TWA	52 mg/m <sup>3</sup> 10 ppm
	CA AB OEL	STEL	79 mg/m <sup>3</sup> 15 ppm
	CA BC OEL	TWA	10 ppm
	CA BC OEL	STEL	15 ppm
	CA QC OEL	TWAEV	52 mg/m <sup>3</sup> 10 ppm
	CA QC OEL	STEV	79 mg/m <sup>3</sup> 15 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.

### 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: Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection),

potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

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

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. 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	Brown
Odor	pungent
Odor Threshold	No test data available
pH	5.18 <i>pH Electrode</i>
Melting point/range	Not applicable
Freezing point	No data available
Boiling point (760 mmHg)	No test data available
Flash point	<b>closed cup</b> > 100 °C <i>Closed Cup</i>
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	No data available
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	No data available
Water solubility	No test data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Liquid Density	1.04 g/cm <sup>3</sup> at 20 °C <i>Digital density meter</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:** Stable under recommended storage conditions. See Storage, Section 7.

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

**Conditions to avoid:** Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

**Incompatible materials:** Avoid contact with oxidizing materials.

**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: Hydrocarbons. Hydrogen chloride. Hydrogen fluoride. Nitrogen oxides. Sulfur oxides. 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

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.

For similar material(s):  
LD50, Rat, 3,129 mg/kg

#### Acute dermal toxicity

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

For similar material(s):  
LD50, Rat, > 5,000 mg/kg

#### Acute inhalation toxicity

Prolonged excessive exposure to mist 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 may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.

For similar material(s):  
LC50, Rat, 4 Hour, dust/mist, > 1 - < 2.12 mg/l

### Skin corrosion/irritation

Brief contact may cause moderate skin irritation with local redness.  
Prolonged contact may cause skin irritation, even a burn.  
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**

For similar material(s):

Has demonstrated the potential for contact allergy in mice.

For respiratory sensitization:

No relevant information found.

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

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

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

For the active ingredient(s):

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

Bone marrow.

Kidney.

Liver.

Thymus.

Thyroid.

Bladder.

For the solvent(s):

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

For the minor component(s):

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

Kidney.

**Carcinogenicity**

For the active ingredient(s): Cloquintocet-mexyl. Did not cause cancer in laboratory animals.

For the active ingredient(s): Pyroxsulam. There was equivocal evidence of carcinogenic activity in long-term bioassays. These effects are not believed to be relevant to humans.

Contains naphthalene which has caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative.

**Teratogenicity**

For the active ingredient(s): For the solvent(s): Did not cause birth defects or any other fetal effects in laboratory animals.

**Reproductive toxicity**

In animal studies, active ingredient did not interfere with reproduction. For the major component(s): No relevant data found.

**Mutagenicity**

For the active ingredient(s): For the major 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.

**Carcinogenicity**

**Component**

**Solvent naphtha (petroleum),  
heavy 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

#### Pyroxsulam

##### **Acute toxicity to fish**

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, > 87.0 mg/l, OECD Test Guideline 203 or Equivalent

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

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

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

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

EC50, Lemna minor (duckweed), 7 d, Biomass, 0.00257 mg/l, OECD 221.

##### **Toxicity to bacteria**

EC50, activated sludge, 3 Hour, > 1,000 mg/l

##### **Chronic toxicity to fish**

NOEC, Pimephales promelas (fathead minnow), flow-through test, 40 d, survival, 3.2 - 10.1 mg/l

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

NOEC, Daphnia magna (Water flea), static test, 21 d, survival, 10.4 mg/l

##### **Toxicity to Above Ground Organisms**

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

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

LC50, Colinus virginianus (Bobwhite quail), 8 d, > 5000mg/kg diet.

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

oral LD50, Apis mellifera (bees), 48 Hour, > 107.4micrograms/bee

contact LD50, Apis mellifera (bees), 48 Hour, > 100micrograms/bee

##### **Toxicity to soil-dwelling organisms**

LC50, Eisenia fetida (earthworms), 14 d, > 10,000 mg/kg

#### Cloquintocet-mexyl

##### **Acute toxicity to fish**

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).

As the ester active substance.

LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, > 0.97 mg/l, Method Not Specified.

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

As the ester active substance.

EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, > 0.82 mg/l, Method Not Specified.

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

As the ester active substance.

EbC50, alga Scenedesmus sp., 96 Hour, Biomass, 0.63 mg/l, Method Not Specified.

As the ester active substance.

EbC50, Lemna minor (duckweed), 14 d, Biomass, > 0.42 mg/l, Method Not Specified.

**Toxicity to Above Ground Organisms**

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).  
Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).  
oral LD50, Anas platyrhynchos (Mallard duck), > 2000mg/kg bodyweight.  
dietary LC50, Anas platyrhynchos (Mallard duck), 8 d, > 5200mg/kg diet.  
oral LD50, Apis mellifera (bees), 48 Hour, > 100micrograms/bee  
contact LD50, Apis mellifera (bees), 48 Hour, > 100micrograms/bee

**Toxicity to soil-dwelling organisms**

LC50, Eisenia fetida (earthworms), > 1,000 mg/kg

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

**Acute toxicity to fish**

For similar material(s):

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).

EC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 3.6 mg/l

LL50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 2 - 5 mg/l

**Acute toxicity to aquatic invertebrates**

For similar material(s):

EC50, Daphnia magna (Water flea), semi-static test, 48 Hour, 1.1 mg/l

EL50, Daphnia magna (Water flea), static test, 48 Hour, 1.4 mg/l, OECD Test Guideline 202

**Acute toxicity to algae/aquatic plants**

For similar material(s):

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 7.9 mg/l

EL50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth inhibition (cell density reduction), 1 - 3 mg/l, OECD Test Guideline 201

**Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts**

**Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

For similar material(s):

LC50, zebra fish (Brachydanio rerio), 96 Hour, 31.6 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 48 Hour, 62 mg/l

**Acute toxicity to algae/aquatic plants**

For similar material(s):

ErC50, Selenastrum capricornutum (green algae), 96 Hour, Growth rate inhibition, 29 mg/l

**Toxicity to bacteria**

For similar material(s):

EC50, activated sludge, 3 Hour, Respiration rates., 550 mg/l

**Chronic toxicity to fish**

For similar material(s):

NOEC, Rainbow trout (Salmo gairdneri), 72 d, survival, 0.23 mg/l

**Chronic toxicity to aquatic invertebrates**

For similar material(s):

NOEC, Daphnia magna (Water flea), 21 d, number of offspring, 1.18 mg/l

**Naphthalene**

**Acute toxicity to fish**

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).

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 0.11 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), static test, 48 Hour, 1.6 - 24.1 mg/l

**Acute toxicity to algae/aquatic plants**

ErC50, Skeletonema costatum (marine diatom), Growth rate inhibition, 72 Hour, 0.4 mg/l

**Chronic toxicity to fish**

NOEC, Other, flow-through, 40 d, mortality, 0.37 mg/l

**Balance**

**Acute toxicity to fish**

No relevant data found.

**Persistence and degradability**

**Pyroxsulam**

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

10-day Window: Fail

**Biodegradation:** 20 - 30 %

**Exposure time:** 28 d

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

**Cloquintocet-mexyl**

**Biodegradability:** No relevant data found.

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

**Biodegradability:** For similar material(s): Biodegradation may occur under aerobic conditions (in the presence of oxygen). 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.

**Biodegradation:** 58.6 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301F

**Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts**

**Biodegradability:** 10-day Window: Fail

**Biodegradation:** 2.9 %

**Exposure time:** 28 d

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

**Naphthalene**

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

**Theoretical Oxygen Demand:** 3.00 mg/mg

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	57.000 %
10 d	71.000 %
20 d	71.000 %

**Photodegradation****Test Type:** Half-life (indirect photolysis)**Sensitization:** OH radicals**Atmospheric half-life:** 5.9 Hour**Method:** Estimated.**Balance****Biodegradability:** No relevant data found.**Bioaccumulative potential****Pyroxsulam****Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).**Partition coefficient: n-octanol/water(log Pow):** -1.01 Measured**Cloquintocet-mexyl****Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).**Partition coefficient: n-octanol/water(log Pow):** 5.3 Estimated.**Bioconcentration factor (BCF):** 122 - 621 Fish**Solvent naphtha (petroleum), heavy aromatic****Bioaccumulation:** For similar material(s): Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).**Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts****Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).**Partition coefficient: n-octanol/water(log Pow):** 4.6 OECD Test Guideline 107 or Equivalent**Naphthalene****Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).**Partition coefficient: n-octanol/water(log Pow):** 3.4 OECD Test Guideline 107**Bioconcentration factor (BCF):** 40 - 300 Fish 28 d Measured**Balance****Bioaccumulation:** No relevant data found.**Mobility in soil****Pyroxsulam**

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

**Partition coefficient (Koc):** <= 42 Estimated.**Cloquintocet-mexyl**

Expected to be relatively immobile in soil (Koc &gt; 5000).

**Partition coefficient (Koc):** 38070 Estimated.

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

No data available.

**Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts**

No relevant data found.

**Naphthalene**

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

**Partition coefficient (Koc): 664****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>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(PYROXSULAM, Naphthalene)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III
<b>Marine pollutant</b>	PYROXSULAM, Naphthalene

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

<b>Proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(PYROXSULAM, Naphthalene)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III
<b>Marine pollutant</b>	PYROXSULAM, Naphthalene
<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>	Environmentally hazardous substance, liquid, n.o.s.(PYROXSULAM, Naphthalene)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III

**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.  
NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

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**

Not applicable

**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: 29985

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 POISON

EYE AND SKIN IRRITANT

POTENTIAL DERMAL SENSITIZER

Allergens Contained in the Pest Control Product: Warning, contains the allergen soy

This product is toxic to:

Aquatic organisms

Non-target terrestrial plants

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## 16. OTHER INFORMATION

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**Hazard Rating System****NFPA**

Health	Flammability	Instability
2	1	1

**Revision**

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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)
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
Corteva OEL	Corteva Occupational Exposure Limit
Dow IHG	Dow Industrial Hygiene Guideline
STEL	15-minute occupational exposure limit
STEV	Short-term exposure value
TWA	Time Weighted Average (TWA):
TWAEV	Time-weighted average exposure value

**Full text of other abbreviations**

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.

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