

Product name: LORSBAN™ NT Insecticide

Issue Date: 12/17/2020

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.

## 1. IDENTIFICATION

Product name: LORSBAN™ NT Insecticide

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

Identified uses: End use insecticide 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 - Oral

Skin sensitization - Sub-category 1B

Specific target organ toxicity - single exposure - Category 3

Aspiration hazard - Category 1

### Label elements

#### Hazard pictograms



Signal Word: **DANGER!**

**Hazards**

Harmful if swallowed.  
 May be fatal if swallowed and enters airways.  
 May cause an allergic skin reaction.  
 May cause respiratory irritation.  
 May cause drowsiness or dizziness.

**Precautionary statements****Prevention**

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

**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.  
 Do NOT induce vomiting.  
 If skin irritation or rash occurs: Get medical advice/ attention.

**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

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**


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This product is a mixture.

Component	CASRN	Concentration
Chlorpyrifos	2921-88-2	40.18%
Glycerol	56-81-5	2.5%
Solvent naphtha (petroleum), light arom	64742-95-6	20.0%
1,2,4-Trimethylbenzene	95-63-6	6.4% *
Xylene	1330-20-7	0.4% *

Cumene	98-82-8	0.2% *
Balance	Not available	30.32%

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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 not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility. 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:** Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. Attempt seizure control with diazepam 5-10 mg (adults) intravenous over 2-3 minutes. Repeat every 5-10 minutes as needed. Monitor for hypotension, respiratory depression, and need for intubation. Consider second agent if seizures persist after 30 mg. If seizures persist or recur administer phenobarbital 600-1200 mg (adults) intravenous diluted in 60 ml 0.9% saline given at 25-50 mg/minute. Evaluate for hypoxia, dysrhythmia, electrolyte disturbance, hypoglycemia (treat adults with dextrose 100 mg intravenous). Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). 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. 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.

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## 5. FIRE-FIGHTING MEASURES

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**Suitable extinguishing media:** To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

**Unsuitable extinguishing media:** No data available

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

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

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

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. 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). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

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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. See Section 13, Disposal Considerations, for additional information.

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## 7. HANDLING AND STORAGE

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

**Conditions for safe storage:** Avoid temperatures above 50°C (122°F) 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	
Chlorpyrifos	ACGIH	TWA Inhalable fraction and vapor	0.1 mg/m <sup>3</sup>	
	ACGIH	TWA	SKIN, BEI	
	CA AB OEL	TWA	0.1 mg/m <sup>3</sup>	
	CA AB OEL	TWA	SKIN	
	CA BC OEL	TWA Inhalable vapour and aerosols	0.1 mg/m <sup>3</sup>	
	CA QC OEL	TWAEV	0.2 mg/m <sup>3</sup>	
	CA QC OEL	TWAEV	SKIN	
	CA BC OEL	TWA	SKIN	
	Glycerol	CA AB OEL	TWA Mist	10 mg/m <sup>3</sup>
		CA BC OEL	TWA Mist	10 mg/m <sup>3</sup>
CA BC OEL		TWA Respirable mist	3 mg/m <sup>3</sup>	
CA QC OEL		TWAEV Mist	10 mg/m <sup>3</sup>	
Solvent naphtha (petroleum), light arom	ACGIH	TWA	200 mg/m <sup>3</sup> , total hydrocarbon vapor	
	Dow IHG	TWA	100 mg/m <sup>3</sup>	
	Dow IHG	STEL	300 mg/m <sup>3</sup>	
	CA AB OEL	TWA	200 mg/m <sup>3</sup> , total hydrocarbon vapor	
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 QC OEL	TWAEV	246 mg/m <sup>3</sup> 50 ppm	

**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: Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). 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. 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**

<b>Physical state</b>	Liquid
<b>Color</b>	White
<b>Odor</b>	Mild
<b>Odor Threshold</b>	No test data available
<b>pH</b>	4.44 1% pH Electrode 2.81 (neat)
<b>Melting point/range</b>	Not applicable
<b>Freezing point</b>	No data available
<b>Boiling point (760 mmHg)</b>	No data available
<b>Flash point</b>	closed cup > 100 °C Closed Cup

Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not Applicable
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)	1.1253
Water solubility	emulsifiable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No test data available
Kinematic Viscosity	No data available
Explosive properties	No
Oxidizing properties	No significant increase (>5C) in temperature.
Liquid Density	1.12 g/cm <sup>3</sup> at 20 °C
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:** Unstable at elevated temperatures.

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

**Conditions to avoid:** Avoid temperatures above 50 °C  
Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

**Incompatible materials:** Avoid contact with: 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: Hydrogen chloride. Organic sulfides. Sulfur dioxide. 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. Observations in animals include: Lethargy.

For similar material(s):  
LD50, Rat, female, 559.9 mg/kg

**Acute dermal toxicity**

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

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

**Acute inhalation toxicity**

No adverse effects are anticipated from single exposure to mist. 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.

For similar material(s): Maximum attainable concentration.  
LC50, Rat, male and female, 4 Hour, dust/mist, > 1.91 mg/l No deaths occurred at this concentration.

**Skin corrosion/irritation**

Brief contact may cause slight skin irritation with local redness.

**Serious eye damage/eye irritation**

May cause moderate eye irritation.  
May cause slight corneal injury.

**Sensitization**

For similar material(s):  
Has demonstrated the potential for contact allergy in mice.  
Has caused 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.  
Route of Exposure: Inhalation

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

For the active ingredient(s):  
Excessive exposure may produce organophosphate type cholinesterase inhibition.  
Signs and symptoms of excessive exposure to active ingredient may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions.  
In animals, effects have been reported on the following organs:  
Adrenal gland.  
Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.  
For the solvent(s):  
In animals, effects have been reported on the following organs:  
Kidney.  
Liver.  
Respiratory tract.

**Carcinogenicity**

Active ingredient did not cause cancer in laboratory animals.

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

**Teratogenicity**

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

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**

Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals.

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 minor component(s): Reproductive effects seen in female animals are believed to be due to altered nutritional states resulting from extremely high doses of glycerine given in the diet. Similar effects have been seen in animals fed synthetic diets.

**Mutagenicity**

Based on a majority of negative data and some equivocal or marginally positive results, active ingredient is considered to have minimal genetic toxicity potential. For the solvent(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard**

May be fatal if swallowed and enters airways.

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**12. ECOLOGICAL INFORMATION**

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

**Toxicity**

**Chlorpyrifos**

**Acute toxicity to fish**

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

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 0.003 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 48 Hour, 0.00068 mg/l

**Acute toxicity to algae/aquatic plants**

EC50, Skeletonema costatum (marine diatom), 96 Hour, Growth inhibition (cell density reduction), 0.255 - 0.328 mg/l

**Toxicity to bacteria**

EC50, activated sludge, > 100 mg/l

**Chronic toxicity to fish**

NOEC, Pimephales promelas (fathead minnow), 216 d, 0.000568 mg/l  
MATC (Maximum Acceptable Toxicant Level), Pimephales promelas (fathead minnow), 216 d, 0.00226 - 0.00325 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), number of offspring, 0.000056 mg/l  
MATC (Maximum Acceptable Toxicant Level), Daphnia magna (Water flea), number of offspring, 0.000075 mg/l

**Toxicity to Above Ground Organisms**

Material is highly toxic to birds on a dietary basis (LC50 between 50 and 500 ppm).  
oral LD50, Other, 122mg/kg bodyweight.  
dietary LC50, Colinus virginianus (Bobwhite quail), 8 d, 423mg/kg diet.  
oral LD50, Apis mellifera (bees), 48 Hour, 0.36micrograms/bee  
contact LD50, Apis mellifera (bees), 48 Hour, 0.070micrograms/bee

**Toxicity to soil-dwelling organisms**

LC50, Eisenia fetida (earthworms), 14 d, 129 mg/kg

**Glycerol**

**Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).  
LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, >= 885 mg/l, Method Not Specified.

**Acute toxicity to aquatic invertebrates**

LC50, Daphnia magna (Water flea), static test, 48 Hour, 1,955 mg/l, Method Not Specified.

**Acute toxicity to algae/aquatic plants**

EC50, Other, static test, 192 Hour, Growth inhibition (cell density reduction), 2,900 mg/l, Method Not Specified.

**Toxicity to bacteria**

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

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

**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), static test, 96 Hour, 9.22 mg/l, OECD Test Guideline 203 or Equivalent

**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).  
dietary LC50, Colinus virginianus (Bobwhite quail), 8 d, > 6500mg/kg diet.  
oral LD50, Colinus virginianus (Bobwhite quail), 21 d, > 2150mg/kg bodyweight.

**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**

**Chlorpyrifos**

**Biodegradability:** Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%).

10-day Window: Fail

**Biodegradation:** 22 %  
**Exposure time:** 28 d  
**Method:** OECD Test Guideline 301D or Equivalent

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	0.000 %

**Stability in Water (1/2-life)**  
Hydrolysis, half-life, 72 d

**Photodegradation**  
**Test Type:** Half-life (indirect photolysis)  
**Sensitization:** OH radicals  
**Atmospheric half-life:** 1.4 Hour  
**Method:** Estimated.

**Glycerol**

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

10-day Window: Not applicable

**Biodegradation:** 63 %  
**Exposure time:** 14 d  
**Method:** OECD Test Guideline 301C or Equivalent

**Theoretical Oxygen Demand:** 1.22 mg/mg

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

**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.

**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**

**Chlorpyrifos**

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

**Partition coefficient: n-octanol/water(log Pow):** 4.7 at 20 °C Estimated.

**Glycerol**

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

**Partition coefficient: n-octanol/water(log Pow):** -1.76 at 20 °C Measured

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

**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

**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**

**Chlorpyrifos**

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

**Partition coefficient (Koc):** 8151

**Glycerol**

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

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

**Partition coefficient (Koc):** 1 Estimated.

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

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.

**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>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Chlorpyrifos)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III
<b>Marine pollutant</b>	Chlorpyrifos

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

<b>Proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Chlorpyrifos)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III
<b>Marine pollutant</b>	Chlorpyrifos
<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.(Chlorpyrifos)
<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: 29650

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.

DANGER POISON

EYE AND SKIN IRRITANT

POTENTIAL SKIN SENSITIZER

FATAL OR POISONOUS IF SWALLOWED

This product is toxic to:

Birds

Wildlife

Wild mammals.

Certain beneficial insects

This product is extremely toxic to:

Fish

Aquatic organisms

Moderately to highly toxic to aquatic organisms.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds.

TOXIC to bees exposed to direct treatment, drift, or residues on blooming plants.

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## 16. OTHER INFORMATION

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

Health	Flammability	Instability
1	1	1

**Revision**

Identification Number: 11028294 / Issue Date: 12/17/2020 / Version: 3.0

DAS Code: GF-2729

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 QC OEL	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Dow IHG	Dow Industrial Hygiene Guideline
SKIN	Absorbed via skin
SKIN, BEI	Absorbed via Skin, Biological Exposure Indice
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**

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; 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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