

Product name: RESTORE™ II 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: RESTORE™ II 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).  
Eye irritation - Category 2A

### Label elements

#### Hazard pictograms



Signal Word: **WARNING!**

### Hazards

Causes serious eye irritation.

**Precautionary statements****Prevention**

Wash skin thoroughly after handling.  
Wear eye protection/ face protection.

**Response**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/ attention.

**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>
2,4-D Dimethylamine Salt	2008-39-1	41.26%
Aminopyralid Triisopropanolamine Salt	566191-89-7	8.24%
Propylene glycol	57-55-6	5.0%
Balance	Not available	45.5%

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**4. FIRST AID MEASURES**

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**Description of first aid measures****General advice:**

If potential for exposure exists refer to Section 8 for specific personal protective equipment.

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

**Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**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. Never give anything by mouth to an unconscious person.

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

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

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

**Notes to physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

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## **5. 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: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide. Ammonia.

**Unusual Fire and Explosion Hazards:** This material will not burn until the water has evaporated. Residue can burn.

**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. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

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

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. 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. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. 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
2,4-D Dimethylamine Salt	Dow IHG	TWA	10 mg/m3
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

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 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.

### 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. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

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

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, 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	Yellow to orange
Odor	Mild
Odor Threshold	No test data available
pH	6.69 1% pH Electrode (1% aqueous suspension)
Melting point/range	Not applicable
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point	<b>closed cup</b> > 100 °C <i>Pensky-Martens Closed Cup ASTM D 93</i>
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)	No data available
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No test data available
Dynamic Viscosity	10.16 mPa.s at 40 °C
Kinematic Viscosity	No data available
Explosive properties	No
Oxidizing properties	No significant increase (>5C) in temperature.
Liquid Density	1.173 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 data available

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

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

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

**Incompatible materials:** Avoid contact with: Acids. Bases. Oxidizers.

**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: Ammonia. Hydrogen chloride. Nitrogen 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.

As product:

LD50, Rat, female, > 2,000 mg/kg OECD 425 or equivalent

#### Acute dermal toxicity

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

As product:

LD50, Rat, male and female, > 5,000 mg/kg OECD Test Guideline 402

#### Acute inhalation toxicity

Prolonged exposure is not expected to cause adverse effects. Based on the available data, respiratory irritation was not observed.

As product:

LC50, Rat, 4 Hour, Liquid aerosol., > 5.26 mg/l

### 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

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

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

Product test data not available. Refer to component data.

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

For the active ingredient(s):

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

Adrenal gland.  
Bone marrow.  
Eye.  
Gastrointestinal tract.  
Kidney.  
Liver.  
Spleen.  
Testes.  
Thyroid.

For the minor component(s):

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

Kidney.  
Liver.

In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

**Carcinogenicity**

For similar active ingredient(s). Aminopyralid. Did not cause cancer in laboratory animals.

For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. Available data are inadequate to evaluate carcinogenicity. There is no evidence of carcinogenicity in laboratory animal toxicity studies. While some epidemiological studies report a positive association between 2,4-D exposure and cancer, a weight of evidence analysis of the epidemiology data across studies reveals no indication that 2,4-D causes cancer in humans.

**Teratogenicity**

For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals. Aminopyralid. Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

**Reproductive toxicity**

For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring. Aminopyralid. In animal studies, did not interfere with reproduction.

**Mutagenicity**

For the active ingredient(s): 2,4-D SALTS Aminopyralid. In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were inconclusive

**Aspiration Hazard**

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

**COMPONENTS INFLUENCING TOXICOLOGY:**

**Aminopyralid Triisopropanolamine Salt**

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

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

**Propylene glycol**

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

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

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## 12. ECOLOGICAL INFORMATION

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

### Toxicity

#### Acute toxicity to fish

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

LC50, Lepomis macrochirus (Bluegill sunfish), semi-static test, 96 Hour, 83 mg/l

#### Acute toxicity to aquatic invertebrates

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

EC50, eastern oyster (Crassostrea virginica), flow-through test, 96 Hour, 96 mg/l, Other guidelines

### Persistence and degradability

#### 2,4-D Dimethylamine Salt

**Biodegradability:** For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

#### Aminopyralid Triisopropanolamine Salt

**Biodegradability:** For similar material(s): Aminopyralid. Material is not readily biodegradable according to OECD/EEC guidelines.

#### 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.



**Balance**

**Biodegradability:** No relevant data found.

**Bioaccumulative potential**

**Bioaccumulation:** No data available.

**Mobility in soil**

**2,4-D Dimethylamine Salt**

For similar active ingredient(s).  
2,4-Dichlorophenoxyacetic acid.  
Potential for mobility in soil is very high (Koc between 0 and 50).

**Aminopyralid Triisopropanolamine Salt**

For similar active ingredient(s).  
Aminopyralid.  
Potential for mobility in soil is very high (Koc between 0 and 50).

**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.

**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**

Not regulated for transport

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

Not regulated for transport  
Consult IMO regulations before transporting ocean bulk

**Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code**

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

Not regulated for transport

**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: 30632

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 EYE AND SKIN IRRITANT

This product is toxic to:

Small wild mammals

Birds

Aquatic organisms

Non-target terrestrial plants

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**16. OTHER INFORMATION**

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**Hazard Rating System**

**NFPA**

Health	Flammability	Instability
3	1	0

**Revision**

Identification Number: 11033795 / Issue Date: 12/21/2020 / Version: 3.0

DAS Code: GF-2633

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

**Legend**

CA ON OEL	Canada. Ontario OELs
Dow IHG	Dow Industrial Hygiene Guideline
TWA	8-hr TWA
TWAEV	time-weighted average exposure value
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

**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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