

# SAFETY DATA SHEET

## CORTEVA AGRISCIENCE LLC

**Product name:** Turflon® Ester

**Issue Date:** 05/15/2020

**Print Date:** 03/30/2022

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

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## 1. IDENTIFICATION

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**Product name:** Turflon® Ester

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

**Identified uses:** End use herbicide product

### COMPANY IDENTIFICATION

CORTEVA AGRISCIENCE LLC  
9330 ZIONSVILLE RD  
INDIANAPOLIS IN 46268-1053  
UNITED STATES

**Customer Information Number:**

800-992-5994

customerinformation@corteva.com

### EMERGENCY TELEPHONE

**24-Hour Emergency Contact:** (800)-992-5994

**Local Emergency Contact:** 317-337-6009

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## 2. HAZARDS IDENTIFICATION

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### Hazard classification

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids - Category 4

Acute toxicity - Category 4 - Oral

Skin sensitisation - Sub-category 1B

Specific target organ toxicity - single exposure - Category 3

Specific target organ toxicity - repeated exposure - Category 2

Aspiration hazard - Category 1

### Label elements

#### Hazard pictograms



Signal word: **DANGER!**

**Hazards**

Combustible liquid.

Harmful if swallowed.

May be fatal if swallowed and enters airways.

May cause an allergic skin reaction.

May cause drowsiness or dizziness.

May cause damage to organs (Kidney) through prolonged or repeated exposure.

**Precautionary statements****Prevention**

Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.

Do not breathe 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/ eye protection/ face protection.

**Response**

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

Get medical advice/ attention if you feel unwell.

Do NOT induce vomiting.

If skin irritation or rash occurs: Get medical advice/ attention.

Wash contaminated clothing before reuse.

In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

**Storage**

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

Store in a well-ventilated place. Keep cool.

Store locked up.

**Disposal**

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

**Other hazards**

No data available

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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This product is a mixture.

**Component****CASRN****Concentration**

Triclopyr-2-butoxyethyl ester

64700-56-7

61.6%

Kerosene	8008-20-6	>= 18.6 - <= 31.0 %
Ethylene glycol monobutyl ether	111-76-2	>= 0.3 - < 1.0 %
Balance	Not available	>= 7.1 - <= 18.8 %

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## 4. FIRST AID MEASURES

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### Description of first aid measures

#### General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

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

**Skin contact:** Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

**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.

**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:** Skin contact may aggravate preexisting dermatitis. 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.

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## 5. FIREFIGHTING MEASURES

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

**Unsuitable extinguishing media:** No data available

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

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide. If involved in a fire, toxic fumes may be released.

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

**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. Burning liquids may be extinguished by dilution with water. 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. No smoking in 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. 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. Keep away from heat, sparks and flame. 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. Containers, even those that have been emptied, can contain

vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

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

#### Storage stability

To maintain product quality, recommended storage temperature is -10 °C (14 °F)

## 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.

Component	Regulation	Type of listing	Value/Notation
Triclopyr-2-butoxyethyl ester	Dow IHG	TWA	2 mg/m <sup>3</sup>
	Dow IHG	TWA	SKIN, DSEN, BEI
Kerosene	Dow IHG	TWA	100 mg/m <sup>3</sup> , total hydrocarbon vapor
	Dow IHG	TWA	SKIN
	ACGIH	TWA	200 mg/m <sup>3</sup> , total hydrocarbon vapor
	ACGIH	TWA	SKIN
Ethylene glycol monobutyl ether	OSHA Z-1	TWA	2,000 mg/m <sup>3</sup> 500 ppm
	ACGIH	TWA	20 ppm
	OSHA Z-1	TWA	240 mg/m <sup>3</sup> 50 ppm
	ACGIH	TWA	BEI
	OSHA Z-1	TWA	SKIN

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

#### Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Ethylene glycol monobutyl ether	111-76-2	Butoxyacetic acid (BAA)	Urine	End of shift (As soon as possible after exposure ceases)	200 mg/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 safety glasses (with side shields).

**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**

Physical state	Liquid.
Color	Yellow
Odor	Gasoline-like
Odor Threshold	No test data available
pH	6.36 1% pH Electrode
Melting point/range	Not applicable
Freezing point	No data available
Boiling point (760 mmHg)	No test data available
Flash point	<b>closed cup</b> 65.5 °C ( 149.9 °F) <i>EC Method A9</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	No
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)	1.079 at 23 °C (73 °F) / 4 °C <i>EC Method A3</i>
Water solubility	emulsifiable

<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Auto-ignition temperature</b>	No test data available
<b>Decomposition temperature</b>	No test data available
<b>Dynamic Viscosity</b>	16.4 mPa.s at 20 °C (68 °F)
<b>Kinematic Viscosity</b>	11.2 cSt at 20 °C (68 °F)
<b>Explosive properties</b>	No <i>EEC A14</i>
<b>Oxidizing properties</b>	No significant increase (>5C) in temperature.
<b>Liquid Density</b>	1.09 g/mL
<b>Molecular weight</b>	No data available
<b>Surface tension</b>	27.0 mN/m at 25 °C (77 °F) <i>EC Method A5</i>

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.

**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: Carbon monoxide. Carbon dioxide. 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, 1,338 mg/kg

#### Acute dermal toxicity

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

As product:

LD50, Rabbit, > 2,000 mg/kg No deaths occurred at this concentration.

**Acute inhalation toxicity**

No adverse effects are anticipated from single exposure to mist. Mist may cause irritation of upper respiratory tract (nose and throat).

As product:

LC50, Rat, 4 Hour, dust/mist, > 5.2 mg/l No deaths occurred at this concentration.

**Skin corrosion/irritation**

Brief contact may cause slight skin irritation with local redness.

May cause drying and flaking of the skin.

Repeated contact may cause severe skin irritation with local redness and discomfort.

**Serious eye damage/eye irritation**

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

May cause slight eye irritation.

Corneal injury is unlikely.

**Sensitization**

Has caused allergic skin reactions when tested in guinea pigs.

With the dilute mix, no allergic skin reaction is expected.

For respiratory sensitization:

No relevant data found.

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

May cause drowsiness or dizziness.

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

For the active ingredient(s):

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

Kidney.

Liver.

**Carcinogenicity**

In a lifetime animal dermal carcinogenicity study, an increased incidence of skin tumors was observed when kerosene was applied at doses that also produced skin irritation. This response was similar to that produced in skin by other types of chronic chemical/physical irritation. No increase in tumors was observed when non-irritating dilutions of kerosene were applied at equivalent doses, indicating that kerosene is unlikely to cause skin cancer in the absence of long-term continued skin irritation.

Active ingredient did not cause cancer in laboratory animals.

**Teratogenicity**

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

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



**Reproductive toxicity**

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

**Mutagenicity**

For the active ingredient(s): 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.

**Carcinogenicity**

Component	List	Classification
Kerosene	ACGIH	A3: Confirmed animal carcinogen with unknown relevance to humans.
Ethylene glycol monobutyl ether	ACGIH	A3: Confirmed animal carcinogen with unknown relevance to humans.

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## 12. ECOLOGICAL INFORMATION

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

**Toxicity****Acute toxicity to fish**

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), flow-through test, 96 Hour, 0.984 mg/l

LC50, *Lepomis macrochirus* (Bluegill sunfish), static test, 96 Hour, 0.44 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, *Daphnia magna* (Water flea), flow-through test, 48 Hour, 0.35 mg/l

**Acute toxicity to algae/aquatic plants**

EbC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Biomass, 10.6 mg/l

ErC50, *Pseudokirchneriella subcapitata* (microalgae), static test, 72 Hour, Growth rate inhibition, 36.7 mg/l

**Toxicity to Above Ground Organisms**

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

oral LD50, *Colinus virginianus* (Bobwhite quail), 1350mg/kg bodyweight.

oral LD50, *Apis mellifera* (bees), 48 Hour, > 230µg/bee

contact LD50, *Apis mellifera* (bees), 48 Hour, > 230µg/bee

**Toxicity to soil-dwelling organisms**

LC50, Eisenia fetida (earthworms), 14 d, 2,552 mg/kg

**Persistence and degradability**

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

**Bioaccumulative potential**

**Triclopyr-2-butoxyethyl ester**

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

**Partition coefficient: n-octanol/water(log Pow):** 4.62

**Bioconcentration factor (BCF):** 110 Fish

**Kerosene**

**Bioaccumulation:** Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

**Partition coefficient: n-octanol/water(log Pow):** 6.23

**Bioconcentration factor (BCF):** 207.7

**Ethylene glycol monobutyl ether**

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

**Partition coefficient: n-octanol/water(log Pow):** 0.81 Measured

**Bioconcentration factor (BCF):** 3.2

**Balance**

**Bioaccumulation:** No relevant data found.

**Mobility in soil**

**Triclopyr-2-butoxyethyl ester**

Calculation of meaningful sorption data was not possible due to very rapid degradation in the soil.

For the degradation product:

Triclopyr.

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

**Kerosene**

Potential for mobility in soil is slight (Koc between 2000 and 5000).

**Partition coefficient (Koc):** 4818

**Ethylene glycol monobutyl ether**

Potential for mobility in soil is high (Koc between 50 and 150).

**Partition coefficient (Koc):** 67 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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**DOT**

<b>Proper shipping name</b>	Combustible liquid, n.o.s.(Triclopyr, Kerosene (petroleum))
<b>UN number</b>	NA 1993
<b>Class</b>	CBL
<b>Packing group</b>	III

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

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

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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### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Flammable (gases, aerosols, liquids, or solids)  
 Acute toxicity (any route of exposure)  
 Respiratory or skin sensitisation  
 Specific target organ toxicity (single or repeated exposure)  
 Aspiration hazard

### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Components	CASRN
Triclopyr-2-butoxyethyl ester	64700-56-7
Ethylene glycol monobutyl ether	111-76-2
2-Butoxyethyl Chloroacetate	5330-17-6

### Pennsylvania Right To Know

The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	CASRN
Triclopyr-2-butoxyethyl ester	64700-56-7
Kerosene	8008-20-6

### California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

### United States TSCA Inventory (TSCA)

This product contains chemical substance(s) exempt from U.S. EPA TSCA Inventory requirements. It is regulated as a pesticide subject to Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.

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## 16. OTHER INFORMATION

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### Hazard Rating System

#### NFPA

	Health	Flammability	Instability
<b>  </b>	1	2	0

### Revision

Identification Number: / A211 / Issue Date: 05/15/2020 / Version: 17.0

DAS Code: XRM-4714

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
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
SKIN	Absorbed via skin
SKIN, DSEN, BEI	Absorbed via Skin, Skin Sensitizer, Biological Exposure Indice
TWA	Time Weighted Average (TWA):

**Full text of other abbreviations**

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

**Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

CORTEVA AGRISCIENCE LLC 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.

US