SAFETY DATA SHEET

Remedy®

Version	Revision Date:	SDS Number:	Date of last issue: 02/11/2022
1.1	06/14/2022	800080100242	Date of first issue: 02/11/2022

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

SECTION 1. IDENTIFICATION

Product name : Remedy®

Manufacturer or supplier's details

COMPANY IDENTIFICATION

Manufacturer/importer : CORTEVA AGRISCIENCE LLC
9330 ZIONSVILLE RD
INDIANAPOLIS, IN, 46268-1053
UNITED STATES

Customer Information Number : 800-992-5994

E-mail address : customerinformation@corteva.com

Emergency telephone : INFOTRAC (CONTRACT 84224).

800-992-5994 or 317-337-6009

Recommended use of the chemical and restrictions on use

Recommended use : End use herbicide product

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids : Category 4

Acute toxicity (Oral) : Category 4

Skin sensitization : Sub-category 1B

Specific target organ toxicity - single exposure : Category 3 (Central nervous system)

Specific target organ toxicity : Category 2 (Kidney)

- repeated exposure

Aspiration hazard : Category 1

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H227 Combustible liquid.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H317 May cause an allergic skin reaction.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs (Kidney) through prolonged or repeated exposure.

Precautionary Statements :

Prevention:

P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P314 Get medical advice/ attention if you feel unwell.
P331 Do NOT induce vomiting.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste dis-

posal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Triclopyr-2-butoxyethyl ester	64700-56-7	61.6
Kerosine (petroleum), sweetened; Kerosine — unspecified	91770-15-9	>= 30 - < 40
Benzenesulfonic Acid, Mono-C10-13-branched Alkyl Derivs., compds. with N,N-Dimethyl-1,3-propanediamine	90194-53-9	>= 1 - < 3

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

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

In case of skin contact : Take off contaminated clothing. 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.

In case of eye contact : Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

If swallowed : 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 : None known.

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

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.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2)
Unsuitable extinguishing media	:	Do not use direct water stream. High volume water jet
Specific hazards during fire fighting	:	Exposure to combustion products may be a hazard to health. Vapors may form explosive mixtures with air. Do not allow run-off from fire fighting to enter drains or water courses. Flash back possible over considerable distance.
Hazardous combustion products	:	During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides (NOx) Hydrogen chloride gas Carbon oxides
Specific extinguishing methods	:	Remove undamaged containers from fire area if it is safe to do so. Evacuate area. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Further information	:	Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Do not use a solid water stream as it may scatter and spread

fire.

Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Ensure adequate ventilation. Use personal protective equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities. Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g., by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained. Prevent from entering into soil, ditches, sewers,undwater. See Section 12, Ecological Information.
Methods and materials for containment and cleaning up	:	Clean up remaining materials from spill with suitable absorbant. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, Recovered material should be stored in a vented container. The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to overpressurization of the container. Keep in suitable, closed containers for disposal. Wipe up with absorbent material (e.g. cloth, fleece). Non-sparking tools should be used. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Suppress (knock down) gases/vapors/mists with a water spray jet. See Section 13, Disposal Considerations, for additional information.

SECTION 7. HANDLING AND STORAGE

Local/Total ventilation	:	Use with local exhaust ventilation.
Advice on safe handling	:	Avoid formation of aerosol.

Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Provide sufficient air exchange and/or exhaust in work rooms.
Do not breathe vapors/dust.
Do not smoke.
Handle in accordance with good industrial hygiene and safety practice.
Avoid exposure - obtain special instructions before use.
Smoking, eating and drinking should be prohibited in the application area.
Do not get on skin or clothing.
Do not breathe vapors or spray mist.
Do not swallow.
Avoid contact with skin and eyes.
Avoid contact with eyes.
Keep container tightly closed.
Keep away from heat and sources of ignition.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Conditions for safe storage : Store in a closed container.
No smoking.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep in properly labeled containers.
Store in accordance with the particular national regulations.

Materials to avoid : Strong oxidizing agents
Explosives
Gases

Packaging material : Unsuitable material: None known.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Triclopyr-2-butoxyethyl ester	64700-56-7	TWA	2 mg/m3	Dow IHG
Kerosine (petroleum), sweetened; Kerosine — unspecified	91770-15-9	TWA	200 mg/m3 (total hydrocarbon vapor)	ACGIH

Engineering measures : Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.

Local exhaust ventilation may be necessary for some operations.

Personal protective equipment

Respiratory protection : Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

Hand protection

Remarks : Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: 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.

Eye protection : Use safety glasses (with side shields).

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

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid.

Color : Yellow

Odor : Gasoline-like

Odor Threshold : No data available

pH : 6.36 (77 °F / 25 °C)
Concentration: 1 %
Method: pH Electrode

Melting point/range	:	Not applicable
Freezing point		No data available
Boiling point/boiling range	:	No data available
Flash point	:	149.9 °F / 65.5 °C Method: EC Method A9, closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Density	:	1.09 g/cm3
Solubility(ies) Water solubility	: :	 emulsifiable
Autoignition temperature	:	No data available
Viscosity Viscosity, dynamic	: :	 16.4 mPa.s (68 °F / 20 °C)
Viscosity, kinematic	:	11.2 cSt (68 °F / 20 °C)
Explosive properties	:	No Method: EEC A14
Oxidizing properties	:	No significant increase (>5C) in temperature. Reference substance: Monoammonium phosphate
Surface tension	:	27.0 mN/m, 77 °F / 25 °C, EC Method A5

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	No decomposition if stored and applied as directed. Stable under normal conditions.

Possibility of hazardous reactions	:	Stable under recommended storage conditions. No hazards to be specially mentioned. Vapors may form explosive mixture with air. May form explosive dust-air mixture.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Strong acids Strong bases
Hazardous decomposition products	:	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Nitrogen oxides (NOx) Hydrogen chloride gas Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	LD50 (Rat, female): 1,338 mg/kg LD50 (Rat, male): 1,581 mg/kg
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 5.2 mg/l Exposure time: 4 h Test atmosphere: dust/mist Symptoms: No deaths occurred at this concentration. Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 (Rabbit, male and female): > 2,000 mg/kg Symptoms: No deaths occurred at this concentration. Assessment: The substance or mixture has no acute dermal toxicity

Components:

Triclopyr-2-butoxyethyl ester:

Acute oral toxicity	:	LD50 (Rat, male and female): 803 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 4.8 mg/l Exposure time: 4 h Test atmosphere: dust/mist Symptoms: The LC50 value is greater than the Maximum Attainable Concentration. Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 (Rabbit): > 2,000 mg/kg

Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity

Kerosine (petroleum), sweetened; Kerosine — unspecified:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Remarks: Typical for this family of materials.

Acute inhalation toxicity : LC50 (Rat, male): 5.3 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Typical for this family of materials.

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Typical for this family of materials.

Skin corrosion/irritation

Product:

Species : Rabbit
Result : Mild skin irritation

Components:

Triclopyr-2-butoxyethyl ester:

Species : Rabbit
Result : No skin irritation

Kerosine (petroleum), sweetened; Kerosine — unspecified:

Result : Skin irritation

Benzenesulfonic Acid, Mono-C10-13-branched Alkyl Derivs., compds. with N,N-Dimethyl-1,3-propanediamine:

Result : Skin irritation

Serious eye damage/eye irritation

Product:

Species : Rabbit
Result : No eye irritation

Components:

Triclopyr-2-butoxyethyl ester:

Species : Rabbit
Result : No eye irritation

Benzenesulfonic Acid, Mono-C10-13-branched Alkyl Derivs., compds. with N,N-Dimethyl-1,3-propanediamine:

Result : Corrosive

Respiratory or skin sensitization

Product:

Species : Guinea pig
Assessment : The product is a skin sensitizer, sub-category 1B.
Remarks : With the dilute mix, no allergic skin reaction is expected.

Components:

Triclopyr-2-butoxyethyl ester:

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

Kerosine (petroleum), sweetened; Kerosine — unspecified:

Remarks : For this family of materials, sensitization studies done in guinea pigs have been negative.

Germ cell mutagenicity

Components:

Triclopyr-2-butoxyethyl ester:

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

Kerosine (petroleum), sweetened; Kerosine — unspecified:

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

Carcinogenicity

Components:

Triclopyr-2-butoxyethyl ester:

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

Kerosine (petroleum), sweetened; Kerosine — unspecified:

Carcinogenicity - Assessment : 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.

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Components:

Triclopyr-2-butoxyethyl ester:

Reproductive toxicity - Assessment : 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. Has been toxic to the fetus in laboratory animals at doses toxic to the mother., Did not cause birth defects in laboratory animals.

Kerosine (petroleum), sweetened; Kerosine — unspecified:

Reproductive toxicity - Assessment : Limited data in laboratory animals suggest that the material does not affect reproduction.
Did not cause birth defects or any other fetal effects in laboratory animals.

STOT-single exposure

Product:

Assessment : May cause drowsiness or dizziness.

Components:

Triclopyr-2-butoxyethyl ester:

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

Kerosine (petroleum), sweetened; Kerosine — unspecified:

Assessment : May cause drowsiness or dizziness.

Benzenesulfonic Acid, Mono-C10-13-branched Alkyl Derivs., compds. with N,N-Dimethyl-1,3-propanediamine:

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

STOT-repeated exposure

Product:

Assessment : May cause damage to organs through prolonged or repeated exposure.

Components:

Triclopyr-2-butoxyethyl ester:

Target Organs : Kidney
Assessment : May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

Triclopyr-2-butoxyethyl ester:

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

Kerosine (petroleum), sweetened; Kerosine — unspecified:

Remarks : In animals, effects have been reported on the following organs after exposure to aerosols:
Central nervous system.
Respiratory tract.
Observations in animals include:
Anesthetic or narcotic effects.

Benzenesulfonic Acid, Mono-C10-13-branched Alkyl Derivs., compds. with N,N-Dimethyl-1,3-propanediamine:

Remarks : No relevant data found.

Aspiration toxicity

Product:

May be fatal if swallowed and enters airways.

Components:

Triclopyr-2-butoxyethyl ester:

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

Kerosine (petroleum), sweetened; Kerosine — unspecified:

May be fatal if swallowed and enters airways.

Benzenesulfonic Acid, Mono-C10-13-branched Alkyl Derivs., compds. with N,N-Dimethyl-1,3-propanediamine:

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

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.984 mg/l Exposure time: 96 h Test Type: flow-through test LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.44 mg/l Exposure time: 96 h Test Type: static test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.35 mg/l Exposure time: 48 h Test Type: flow-through test
Toxicity to algae/aquatic plants	:	EbC50 (Pseudokirchneriella subcapitata (green algae)): 10.6 mg/l End point: Biomass Exposure time: 72 h ErC50 (Pseudokirchneriella subcapitata (microalgae)): 36.7 mg/l End point: Growth rate inhibition Exposure time: 72 h Test Type: static test
Toxicity to soil dwelling organisms	:	LC50 (Eisenia fetida (earthworms)): 2,552 mg/kg Exposure time: 14 d
Toxicity to terrestrial organisms	:	Remarks: Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg). oral LD50 (Colinus virginianus (Bobwhite quail)): 1350 mg/kg bodyweight. oral LD50 (Apis mellifera (bees)): > 230 µg/bee Exposure time: 48 h contact LD50 (Apis mellifera (bees)): > 230 µg/bee Exposure time: 48 h

Ecotoxicology Assessment

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

Components:

Triclopyr-2-butoxyethyl ester:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.36 mg/l Exposure time: 96 h Test Type: flow-through test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 2.9 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 3.00 mg/l End point: Growth rate inhibition Exposure time: 96 h Method: OECD Test Guideline 201 ErC50 (Myriophyllum spicatum): 0.0473 mg/l Exposure time: 14 d NOEC (Myriophyllum spicatum): 0.00722 mg/l Exposure time: 14 d
M-Factor (Acute aquatic toxicity)	:	10
Toxicity to fish (Chronic toxicity)	:	NOEC (Rainbow trout (Oncorhynchus mykiss)): 0.0263 mg/l
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 1.6 mg/l End point: number of offspring Exposure time: 21 d LOEC (Daphnia magna (Water flea)): 5.1 mg/l End point: number of offspring Exposure time: 21 d MATC (Maximum Acceptable Toxicant Level) (Daphnia magna (Water flea)): 2.9 mg/l End point: number of offspring Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	:	10
Toxicity to soil dwelling organisms	:	LC50 (Eisenia fetida (earthworms)): > 1,042 mg/kg Exposure time: 14 d
Toxicity to terrestrial organisms	:	oral LD50 (Colinus virginianus (Bobwhite quail)): 735 mg/kg bodyweight. Exposure time: 21 d dietary LC50 (Colinus virginianus (Bobwhite quail)): 1890 mg/kg diet. Exposure time: 8 d

oral LD50 (Apis mellifera (bees)): > 110 µg/bee
Exposure time: 48 h
End point: mortality

contact LD50 (Apis mellifera (bees)): > 100 µg/bee
Exposure time: 48 h
End point: mortality

Kerosine (petroleum), sweetened; Kerosine — unspecified:

Toxicity to fish : Remarks: 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).
Material is slightly toxic to fish on an acute basis (LC50 between 10 and 100 mg/L).

LC50 (Oncorhynchus mykiss (rainbow trout)): 18 - 25 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: Method Not Specified.
Remarks: For this family of materials:

LC50 (Danio rerio (zebra fish)): 13.5 mg/l
Exposure time: 48 h
Method: Method Not Specified.
Remarks: For this family of materials:

LC50 (Pimephales promelas (fathead minnow)): 18 mg/l
Exposure time: 96 h
Method: Method Not Specified.
Remarks: For this family of materials:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.4 - 21 mg/l
Exposure time: 48 h
Test Type: static test
Method: Method Not Specified.
Remarks: For this family of materials:

Toxicity to algae/aquatic plants : (Pseudokirchneriella subcapitata (green algae)): 6.7 - 30 mg/l
Exposure time: 72 h
Method: Method Not Specified.
Remarks: For this family of materials:

(Pseudokirchneriella subcapitata (green algae)): 5 - 6.2 mg/l
Exposure time: 96 h
Method: Method Not Specified.
Remarks: For this family of materials:

Benzenesulfonic Acid, Mono-C10-13-branched Alkyl Derivs., compds. with N,N-Dimethyl-1,3-propanediamine:

Toxicity to fish : Remarks: 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: 1.1 mg/l
Exposure time: 96 h

Persistence and degradability

Product:

Biodegradability : Result: Readily biodegradable.

Components:

Triclopyr-2-butoxyethyl ester:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 18 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: 10-day Window: Fail

Biochemical Oxygen Demand (BOD) : 0.004 kg/kg

ThOD : 1.39 kg/kg

Stability in water : Test Type: Hydrolysis
Degradation half life (half-life): 8.7 d (25 °C) pH: 7

Photodegradation : Rate constant: 2.3E-11 cm3/s
Method: Estimated.

Kerosine (petroleum), sweetened; Kerosine — unspecified:

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

aerobic
Biodegradation: 57.5 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
Remarks: 10-day Window: Fail

Benzenesulfonic Acid, Mono-C10-13-branched Alkyl Derivs., compds. with N,N-Dimethyl-1,3-propanediamine:

Biodegradability : Result: Not biodegradable
Remarks: Material is not readily biodegradable according to OECD/EEC guidelines.

Bioaccumulative potential

Components:

Triclopyr-2-butoxyethyl ester:

Bioaccumulation	:	Species: Fish Bioconcentration factor (BCF): 110
Partition coefficient: n-octanol/water	:	log Pow: 4.62 pH: 7 Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Kerosine (petroleum), sweetened; Kerosine — unspecified:

Partition coefficient: n-octanol/water	:	log Pow: 6.1 Method: Measured Remarks: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

Benzenesulfonic Acid, Mono-C10-13-branched Alkyl Derivs., compds. with N,N-Dimethyl-1,3-propanediamine:

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

Mobility in soil

Components:

Triclopyr-2-butoxyethyl ester:

Distribution among environmental compartments	:	Remarks: 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).
Stability in soil	:	Test Type: aerobic degradation Dissipation time: 144 - 1,248 h

Kerosine (petroleum), sweetened; Kerosine — unspecified:

Distribution among environmental compartments	:	Koc: 5900 Method: Estimated. Remarks: Expected to be relatively immobile in soil (Koc > 5000).

Benzenesulfonic Acid, Mono-C10-13-branched Alkyl Derivs., compds. with N,N-Dimethyl-1,3-propanediamine:

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

Other adverse effects

Components:

Triclopyr-2-butoxyethyl ester:

Results of PBT and vPvB	:	This substance is not considered to be persistent, bioaccumu-

assessment lating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

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

Kerosine (petroleum), sweetened; Kerosine — unspecified:

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

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

Benzenesulfonic Acid, Mono-C10-13-branched Alkyl Derivs., compds. with N,N-Dimethyl-1,3-propanediamine:

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

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

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

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

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Triclopyr, Kerosene (petroleum))
Class : 9
Packing group : III
Labels : 9

IATA-DGR

UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (Triclopyr, Kerosene (petroleum))
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964

IMDG-Code

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Triclopyr, Kerosene (petroleum))
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes
Remarks	:	Stowage category A

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

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	:	NA 1993
Proper shipping name	:	Combustible liquid, n.o.s. (Triclopyr, Kerosene (petroleum))
Class	:	CBL
Packing group	:	III
Labels	:	NONE
ERG Code	:	128
Marine pollutant	:	no

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 5L 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 product is only classified in containers over 119 gallons or 450 liters. Not regulated if shipped in packages less than or equal to 119 gallons (450 liters). If transporting by vessel or aircraft, unless other means of transportation is impracticable, the product must be shipped as a flammable liquid.

Special precautions for user

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

SECTION 15. REGULATORY INFORMATION

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Respiratory or skin sensitization
Specific target organ toxicity (single or repeated exposure)
Aspiration hazard

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

Triclopyr-2-butoxyethyl ester	64700-56-7	>= 50 - < 70 %
ethylene glycol monobutyl ether	111-76-2	>= 0.1 - < 1 %
2-Butoxyethyl Chloroacetate	5330-17-6	>= 0.1 - < 1 %

US State Regulations

Pennsylvania Right To Know

Triclopyr-2-butoxyethyl ester	64700-56-7

The ingredients of this product are reported in the following inventories:

TSCA : Product contains substance(s) not listed on TSCA inventory.

TSCA list

The following substance(s) is/are subject to a Significant New Use Rule:

Triclopyr Ethyl Ester: 3,5,6-Trichloro-2-pyridinyloxyacetic acid, ethyl ester	60825-27-6

No substances are subject to TSCA 12(b) export notification requirements.

Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number : 62719-070

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

CAUTION

Causes moderate eye irritation
Harmful if swallowed
Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

SECTION 16. OTHER INFORMATION

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

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
Dow IHG	:	Dow Industrial Hygiene Guideline
ACGIH / TWA	:	8-hour, time-weighted average
Dow IHG / TWA	:	Time Weighted Average (TWA):

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; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date : 06/14/2022

Product code: XRM-4714

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

US / EN