SAFETY DATA SHEET
CORTEVA AGRISCIENCE AUSTRALIA PTY LTD

Product name: Grazon® Extra Herbicide **Issue Date:** 14.09.2021

CORTEVA AGRISCIENCE AUSTRALIA PTY LTD 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.

SECTION 1: IDENTIFICATION: PRODUCT IDENTIFIER AND CHEMICAL IDENTITY

Product name: Grazon® Extra Herbicide

Recommended use of the chemical and restrictions on use
Identified uses: End use herbicide product

COMPANY IDENTIFICATION
CORTEVA AGRISCIENCE AUSTRALIA PTY LTD
LEVEL 9, 67 ALBERT AVENUE
CHATSWOOD NSW 2067
AUSTRALIA

Customer Information Number: 1800-700-096
aucustomerservice@corteva.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: +61 2 9474 7350
Local Emergency Contact: 1800-370-754
For advice, contact a doctor (at once) or the Australian Poisons Information Centre: 131 126
Transport Emergency Only Dial 000

SECTION 2: HAZARD(S) IDENTIFICATION

GHS Classification
Flammable liquids - Category 4
Serious eye damage/eye irritation - Category 2A
Skin sensitisation - Category 1
Specific target organ toxicity - repeated exposure - Category 2
Acute aquatic toxicity - Category 1
Chronic aquatic toxicity - Category 1

GHS label elements
Hazard pictograms



Signal word: **WARNING!**

Hazard statements
Combustible liquid.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause damage to organs (Kidney) through prolonged or repeated exposure.
Very toxic to aquatic life with long lasting effects.

Precautionary statements
Prevention
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Avoid release to the environment.
Wear protective gloves/ eye protection/ face protection.

Response
Get medical advice/ attention if you feel unwell.
If skin irritation or rash occurs: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Wash contaminated clothing before re-use.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
Collect spillage.

Other hazards
No data available

SECTION 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

Component	CASRN	Concentration
Triclopyr-2-butoxyethyl ester	64700-56-7	36.35 %
Picloram	1918-02-1	8.71 %
Aminopyralid	150114-71-9	0.7 %
Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether	37251-69-7	< 10.0 %
Hexyloxypropylamine	16728-61-3	< 10.0 %
Balance	Not available	<= 38.24 %

SECTION 4: FIRST AID MEASURES

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 centre 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 centre 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. Suitable emergency eye wash facility should be available in work area.

Ingestion: No emergency medical treatment necessary.
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 pre-existing dermatitis. 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: FIREFIGHTING MEASURES

Hazchem Code: ●3Z

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 fluoride. Carbon monoxide. Carbon dioxide.

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.

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 re-ignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. 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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

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. No smoking in area. 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 labelled containers. Large spills: Contact Corteva Agriscience for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

SECTION 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling: Keep away from heat, sparks and flame. Containers, even those that have been emptied, can contain vapours. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Keep out of reach of children. Avoid prolonged or repeated contact with skin. Avoid contact with eyes, skin, and clothing. Avoid breathing vapour or mist. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

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

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Triclopyr-2-butoxyethyl ester	Dow IHG	TWA	2 mg/m3, SKIN, DSEN, BEI
Picloram	ACGIH	TWA	10 mg/m3
	AU OEL	TWA	10 mg/m3
Aminopyralid	Dow IHG	TWA	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 engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection Use chemical resistant gloves classified under standard AS/NZS 2161.10: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to AS/NZS 2161.10) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to AS/NZS 2161.10) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

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

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.The following should be effective types of air-purifying respirators: Organic vapour cartridge with a particulate pre-filter.

Other Information: Selection and use of personal protective equipment should be in accordance with the recommendations in one or more of the relevant Australian/New Zealand Standards, including:
AS/NZS 1336: Eye and face protection – Guidelines.
AS/NZS 1337: Personal eye protection - Eye and face protectors for occupational applications.
AS/NZS 1715: Selection, use and maintenance of respiratory protective equipment.
AS/NZS 2161: Occupational protective gloves.
AS/NZS 2210: Occupational protective footwear.
AS/NZS 4501: Occupational protective clothing Set

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Liquid.
Colour	Brown
Odour	Ester
Odour Threshold	No data available
pH	No data available
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	200 °C
Flash point - closed cup	82 °C
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour Pressure	No data available
Relative Vapour Density (air = 1)	No data available
Relative Density (water = 1)	No data available
Water solubility	Emulsifiable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Liquid Density	1.148 g/ml
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Thermally stable at recommended temperatures and pressures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Active ingredient decomposes 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: Carbon monoxide. Carbon dioxide. Hydrogen fluoride. Nitrogen oxides. Toxic gases are released during decomposition.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity
Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.
For similar material(s): LD50, Rat, male and female, > 2,000 mg/kg. No deaths occurred at this concentration.

Acute dermal toxicity
Prolonged skin contact is unlikely to result in absorption of harmful amounts.
For similar material(s): LD50, Rat, male and female, > 4,000 mg/kg. No deaths occurred at this concentration.

Acute inhalation toxicity
Prolonged excessive exposure to mist may cause adverse effects. Mist may cause irritation of upper respiratory tract (nose and throat).
As product: The LC50 has not been determined.

Skin corrosion/irritation
Brief contact may cause slight skin irritation with local redness.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation
May cause moderate eye irritation.
May cause slight corneal injury.

Sensitization
For the active ingredient(s): Has caused allergic skin reactions when tested in guinea pigs.
For respiratory sensitization: No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
For the active ingredient(s): In animals, effects have been reported on the following organs: Kidney. Liver. Gastrointestinal tract.
For the solvent(s): Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity
For the active ingredient(s): Picloram. Did not cause cancer in laboratory animals.
For similar active ingredient(s). Triclopyr. Did not cause cancer in laboratory animals.
For the solvent(s): Did not cause cancer in laboratory animals.

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

For the active ingredient(s): Picloram. Did not cause birth defects or other effects in the foetus even at doses which caused toxic effects in the mother. For the solvent(s): Did not cause birth defects or any other foetal 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 active ingredient(s): Picloram. In animal studies, did not interfere with reproduction. For the solvent(s): Studies in laboratory animals indicate that diethylene glycol monoethyl ether (DEGEE) is not a reproductive toxicant even when given in large amounts (a few percent in the drinking water). However, at the highest doses, it caused some toxic effects in offspring of treated animals: increased liver weight, decreased brain weight, reduced sperm motility.

Mutagenicity
For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.
For the solvent(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

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

COMPONENTS INFLUENCING TOXICOLOGY:
Triclopyr-2-butoxyethyl ester
Acute inhalation toxicity
Prolonged exposure is not expected to cause adverse effects. Based on the available data, narcotic effects were not observed. Based on the available data, respiratory irritation was not observed. LC50, Rat, 4 Hour, dust/mist, > 4.8 mg/l. The LC50 value is greater than the Maximum Attainable Concentration.

Picloram
Acute inhalation toxicity
Vapours are unlikely due to physical properties. Prolonged excessive exposure to dust may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).
LC50, Rat, male and female, 4 Hour, dust/mist, > 0.035 mg/l. Maximum attainable concentration. No deaths occurred at this concentration.

Aminopyralid
Acute inhalation toxicity
No adverse effects are anticipated from single exposure to dust. Based on the available data, narcotic effects were not observed. Based on the available data, respiratory irritation was not observed.
LC50, Rat, male and female, 4 Hour, Dust, > 5.5 mg/l

Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether
Acute inhalation toxicity
The LC50 has not been determined.

Hexyloxypropylamine

Acute inhalation toxicity

Excessive exposure may cause severe irritation to the upper respiratory tract (nose and throat).
The LC50 has not been determined.

Balance

Acute inhalation toxicity

The LC50 has not been determined.

SECTION 12: ECOLOGICAL INFORMATION

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

Ecotoxicity

Triclopyr-2-butoxyethyl ester

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, Lepomis macrochirus (Bluegill sunfish), flow-through test, 96 Hour, 0.36 mg/l
LC50, Fish, 96 Hour, 0.310 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 2.9 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate inhibition, > 3.00 mg/l, OECD Test Guideline 201
ErC50, Myriophyllum spicatum, 14 d, 0.0473 mg/l
NOEC, Myriophyllum spicatum, 14 d, 0.00722 mg/l

Chronic toxicity to fish

NOEC, Rainbow trout (Oncorhynchus mykiss), 0.0263 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), 21 d, number of offspring, 1.6 mg/l
LOEC, Daphnia magna (Water flea), 21 d, number of offspring, 5.1 mg/l
MATC (Maximum Acceptable Toxicant Level), Daphnia magna (Water flea), 21 d, number of offspring, 2.9 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), 21 d, 735 mg/kg bodyweight.

Material is slightly toxic to birds on a dietary basis (LC50 between 1001 and 5000 ppm).
Dietary LC50, Colinus virginianus (Bobwhite quail), 8 d, 1890 mg/kg diet.

Oral LD50, Apis mellifera (bees), 48 Hour, mortality, > 110 µg/bee
Contact LD50, Apis mellifera (bees), 48 Hour, mortality, > 100 µg/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, > 1,042 mg/kg

Picloram

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), static test, 96 Hour, 8.8 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, 44.2 mg/l

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate inhibition, > 78.7 mg/l
EC50, Lemna gibba, Growth inhibition, 14 d, 102 mg/l
ErC50, Myriophyllum spicaturn, 14 d, 0.558 mg/l
NOEC, Myriophyllum spicaturn, 14 d, 0.0095 mg/l

Toxicity to bacteria
EC50, activated sludge, 3 Hour, > 100 mg/l

Chronic toxicity to fish
Rainbow trout (Oncorhynchus mykiss), flow-through test, 70 d, 0.55 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), static test, 21 d, number of offspring, 6.79 mg/l
LOEC, Daphnia magna (Water flea), static test, 21 d, number of offspring, 13.5 mg/l
MATC (Maximum Acceptable Toxicant Level), Daphnia magna (Water flea), static test, 21 d, number of offspring, 9.57 mg/l

Toxicity to Above Ground Organisms
Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
Oral LD50, Anas platyrhynchos (Mallard duck), 14 d, > 2510 mg/kg bodyweight.

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).
Dietary LC50, Anas platyrhynchos (Mallard duck), > 5000 mg/kg diet.

Contact LD50, Apis mellifera (bees), 48 Hour, > 100 micrograms/bee
Oral LD50, Apis mellifera (bees), 48 d, > 74 micrograms/bee

Toxicity to soil-dwelling organisms
LC50, Eisenia fetida (earthworms), 14 d, survival, > 5,000 mg/kg

Aminopyralid

Acute toxicity to fish
Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 100 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l, OECD Test Guideline 202 or Equivalent
EC50, eastern oyster (Crassostrea virginica), 96 Hour, > 89 mg/l

Acute toxicity to algae/aquatic plants
ErC50, diatom Navicula sp., 72 Hour, 18 mg/l
EC50, Lemna gibba, 14 d, > 88 mg/l
ErC50, Myriophyllum spicaturn, 14 d, 0.363 mg/l

NOEC, Myriophyllum spicaturn, 14 d, 0.0639 mg/l

Toxicity to bacteria
Bacteria, > 1,000 mg/l

Chronic toxicity to fish
NOEC, Pimephales promelas (fathead minnow), flow-through test, 36 d, growth, 1.36 mg/l
NOEC, Cyprinodon variegatus (sheepshead minnow), 0.1 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, water flea Daphnia magna, 100 mg/l

Toxicity to Above Ground Organisms
Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
Oral LD50, Colinus virginianus (Bobwhite quail), > 2250 mg/kg bodyweight.

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).
Dietary LC50, Colinus virginianus (Bobwhite quail), > 5620 mg/kg diet.

Oral LD50, Apis mellifera (bees), 48 Hour, > 120 micrograms/bee
Contact LD50, Apis mellifera (bees), 48 Hour, > 100 micrograms/bee

Toxicity to soil-dwelling organisms
LC50, Eisenia fetida (earthworms), 14 d, > 1,000 mg/kg

Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether

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, Oncorhynchus mykiss (rainbow trout), 96 Hour, 86 mg/l

Hexyloxypropylamine

Acute toxicity to fish
No relevant data found.

Balance

Acute toxicity to fish
No relevant data found.

Persistence and degradability

Triclopyr-2-butoxyethyl ester

Biodegradability: Chemical degradation (hydrolysis) is expected in the environment. Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Fail
Biodegradation: 18 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 1.39 mg/mg
Stability in Water (1/2-life): Hydrolysis, half-life, 8.7 d, pH 7 Half-life Temperature 25 °C

Photodegradation
Atmospheric half-life: 5.6 Hour
Method: Estimated.

Picloram

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions. Biodegradation may occur under aerobic conditions (in the presence of oxygen). Surface photodegradation is expected with exposure to sunlight.
10-day Window: Fail
Biodegradation: 1.95 %
Exposure time: 28 d
Method: OECD Test Guideline 301

Stability in Water (1/2-life)
Hydrolysis, half-life, > 1.8 year, pH 5 - 9, Half-life Temperature 45 °C, Measured

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 12.5 Hour

Aminopyralid

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
10-day Window: Fail
Biodegradation: 19.5 %
Exposure time: 28 d
Method: OECD Test Guideline 301

Stability in Water (1/2-life)
Hydrolysis, pH 5 - 9, Half-life Temperature 20 °C, Stable
Hydrolysis, pH 5 - 9, Half-life Temperature 50 °C, Stable

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 6.4 d
Method: Estimated.

Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether

Biodegradability: No relevant information found.

Hexyloxypropylamine

Biodegradability: No relevant data found.

Balance

Biodegradability: No relevant data found.

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

Picloram

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water (log Pow): -1.92
Bioconcentration factor (BCF): 0.54 Lepomis macrochirus (Bluegill sunfish)

Aminopyralid

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water (log Pow): -2.87

Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether

Bioaccumulation: No relevant data found.

Hexyloxypropylamine

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 Estimated.
Bioconcentration factor (BCF): 10 Fish Estimated.

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).

Picloram

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc)**:** 35

Aminopyralid

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc)**:** 14

Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether

No relevant data found.

Hexyloxypropylamine

Potential for mobility in soil is medium (Koc between 150 and 500).
Partition coefficient (Koc)**:** 217.7 Estimated.

Balance

No relevant data found.

Results of PBT and vPvB assessment

Triclopyr-2-butoxyethyl ester

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

Picloram

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

Aminopyralid

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

Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether

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

Hexyloxypropylamine

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Balance

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Other adverse effects

Triclopyr-2-butoxyethyl ester

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Picloram

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Aminopyralid

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Hexyloxypropylamine

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Balance

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: DISPOSAL CONSIDERATIONS

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.

SECTION 14: TRANSPORT INFORMATION

ADG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Triclopyr-2-butoxyethyl ester, Picloram)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Triclopyr-2-butoxyethyl ester, Picloram

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Triclopyr-2-butoxyethyl ester, Picloram)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Triclopyr-2-butoxyethyl ester, Picloram
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Triclopyr-2-butoxyethyl ester, Picloram)
UN number	UN 3082
Class	9
Packing group	III

Hazchem Code: ●3Z

Further information:
Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082 are not subject to the Australian Code for the Transport of Dangerous Goods (ADG). This applies when transported by road or rail in packaging's that do not incorporate a receptacle exceeding 500 kg(L) or IBCs per ADG Special Provision AU01.

Marine Pollutants 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 and IATA special provision A197.

This information is not intended to convey all specific regulatory or operational requirements/ information relating to this product. 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.

SECTION 15: REGULATORY INFORMATION

Poison Schedule: S6
APVMA Approval Number: 60830

SECTION 16: ANY OTHER RELEVANT INFORMATION

Revision

Identification Number: 101205028 / A143 / Issue Date: 14.9.2021 / Replaces: 6.01.2021
DAS Code: GF-1544
Sections amended: 5, 14

Legend

ACGIH	USA. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV)
AU OEL	Australia. Workplace Exposure Standards for Airborne Contaminants.
Dow IHG	Dow Industrial Hygiene Guideline
SKIN, DSEN, BEI	Absorbed via Skin, Skin Sensitizer, Biological Exposure Indice
TWA	Exposure standard - time weighted average

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

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