

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

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 Great Britain and may not meet the regulatory requirements in other countries.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : GRAZON™ PRO

Unique Formula Identifier (UFI) : DTJ4-F0X9-U00N-UHDY

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : End use herbicide product

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

Manufacturer/importer

Corteva Agriscience UK Ltd
Melbourn Science Park - Cambridge Road - Unit H4, Building H
Melbourn Cambridgeshire - SG8 6HB
UNITED KINGDOM

Customer Information : +44 8006 89 8899
Number
E-mail address : SDS@corteva.com

1.4 Emergency telephone number

+44 161 88 41235

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Flammable liquids, Category 3 H226: Flammable liquid and vapour.

Skin irritation, Category 2 H315: Causes skin irritation.

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According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1	Revision Date: 22.07.2026	SDS Number: 800080004766	Date of last issue: 14.11.2023 Date of first issue: 14.11.2023
----------------	------------------------------	-----------------------------	---

Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitisation, Sub-category 1B	H317: May cause an allergic skin reaction.
Specific target organ toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.
Specific target organ toxicity - repeated exposure, Category 2, Kidney	H373: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Hazard pictograms	:																			
Signal word	:	Danger																		
Hazard statements	:	<table><tr><td>H226</td><td>Flammable liquid and vapour.</td></tr><tr><td>H304</td><td>May be fatal if swallowed and enters airways.</td></tr><tr><td>H315</td><td>Causes skin irritation.</td></tr><tr><td>H317</td><td>May cause an allergic skin reaction.</td></tr><tr><td>H319</td><td>Causes serious eye irritation.</td></tr><tr><td>H335</td><td>May cause respiratory irritation.</td></tr><tr><td>H336</td><td>May cause drowsiness or dizziness.</td></tr><tr><td>H373</td><td>May cause damage to organs (Kidney) through prolonged or repeated exposure.</td></tr><tr><td>H410</td><td>Very toxic to aquatic life with long lasting effects.</td></tr></table>	H226	Flammable liquid and vapour.	H304	May be fatal if swallowed and enters airways.	H315	Causes skin irritation.	H317	May cause an allergic skin reaction.	H319	Causes serious eye irritation.	H335	May cause respiratory irritation.	H336	May cause drowsiness or dizziness.	H373	May cause damage to organs (Kidney) through prolonged or repeated exposure.	H410	Very toxic to aquatic life with long lasting effects.
H226	Flammable liquid and vapour.																			
H304	May be fatal if swallowed and enters airways.																			
H315	Causes skin irritation.																			
H317	May cause an allergic skin reaction.																			
H319	Causes serious eye irritation.																			
H335	May cause respiratory irritation.																			
H336	May cause drowsiness or dizziness.																			
H373	May cause damage to organs (Kidney) through prolonged or repeated exposure.																			
H410	Very toxic to aquatic life with long lasting effects.																			
Precautionary statements	:	Prevention: <table><tr><td>P210</td><td>Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</td></tr><tr><td>P260</td><td>Do not breathe mist/vapours/spray.</td></tr><tr><td>P280</td><td>Wear protective gloves/ protective clothing/ eye protection/ face protection.</td></tr></table>	P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.	P260	Do not breathe mist/vapours/spray.	P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.												
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.																			
P260	Do not breathe mist/vapours/spray.																			
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.																			

Response:

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1	Revision Date: 22.07.2026	SDS Number: 800080004766	Date of last issue: 14.11.2023 Date of first issue: 14.11.2023
----------------	------------------------------	-----------------------------	---

P301 + P310 + P331 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disposal:

P501 Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

Hazardous components which must be listed on the label:

Triclopyr-2-butoxyethyl ester

Hydrocarbons, C9, aromatics

Hydrocarbons, C10-C13, aromatics, <1% naphthalene

Additional Labelling

EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Triclopyr-2-butoxyethyl ester	64700-56-7 265-024-8	Acute Tox. 4; H302 Skin Sens. 1B; H317 STOT RE 2; H373 (Kidney) Aquatic Acute 1;	32.4

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1 Revision Date: 22.07.2026 SDS Number: 800080004766 Date of last issue: 14.11.2023
Date of first issue: 14.11.2023

		H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	
Clopyralid	1702-17-6 216-935-4 607-231-00-1	Eye Dam. 1; H318 Aquatic Chronic 1; H410 M-Factor (Chronic aquatic toxicity): 10	5.82
Hydrocarbons, C9, aromatics	128601-23-0 UK-01-7188636569-2-0003	Flam. Liq. 3; H226 STOT SE 3; H336 (Central nervous system) STOT SE 3; H335 (Respiratory system) Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 40 - < 50
Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide	Not Assigned 909-125-3 01-2119974115-37-XXXX	Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335 (Respiratory system) Aquatic Chronic 3; H412	>= 3 - < 10
Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts	68953-96-8 273-234-6 01-2119964467-24-XXXX	Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Dam. 1; H318 Aquatic Chronic 2; H411	>= 2.5 - < 3
Hydrocarbons, C10, aromatics, <1% naphthalene	1189173-42-9 UK-01-6674252189-2-0004	STOT SE 3; H336 (Central nervous system) Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 1 - < 2.5
Ethylene glycol monobutyl ether	111-76-2	Acute Tox. 4; H302 Acute Tox. 3; H331 Skin Irrit. 2; H315 Eye Irrit. 2; H319	>= 0.1 - < 0.3

For explanation of abbreviations see section 16.

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

SECTION 4: First aid measures

4.1 Description of first aid measures

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| 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. |
| 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.
If breathing is difficult, oxygen should be administered by qualified personnel. |
| 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.
Suitable emergency safety shower facility should be available in work area. |
| 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. |

4.2 Most important symptoms and effects, both acute and delayed

- | | |
|----------|--|
| Symptoms | : Skin irritation
Eye contact may provoke the following symptoms:
Eye irritation
May cause an allergic skin reaction. |
|----------|--|

4.3 Indication of any immediate medical attention and special treatment needed

- | | |
|-----------|--|
| Treatment | : Maintain adequate ventilation and oxygenation of the patient.
If burn is present, treat as any thermal burn, after decontamination.
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 |
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GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

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.
Skin contact may aggravate preexisting dermatitis.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Exposure to combustion products may be a hazard to health.

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:
Carbon oxides

5.3 Advice for firefighters

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

Specific extinguishing methods : Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

Further information : Use water spray to cool unopened containers.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

6.2 Environmental precautions

Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

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.

6.3 Methods and material for containment and cleaning up

Methods for 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).
Neutralize with chalk, alkali solution or ammonia.
See Section 13, Disposal Considerations, for additional information.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Do not breathe vapours/dust.
Handle in accordance with good industrial hygiene and safety practice.
Smoking, eating and drinking should be prohibited in the application area.
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.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in a closed container. Keep in properly labelled containers. Store in accordance with the particular national regulations.

Advice on common storage : Do not store near acids.
Strong oxidizing agents

Packaging material : Unsuitable material: None known.

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1 Revision Date: 22.07.2026 SDS Number: 800080004766 Date of last issue: 14.11.2023
Date of first issue: 14.11.2023

7.3 Specific end use(s)

Specific use(s) : Plant protection products subject to Regulation (EC) No 1107/2009.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Triclopyr-2-butoxyethyl ester	64700-56-7	8-hr TWA	2 mg/m ³	Corteva OEL
		Short Term Exposure Limit (STEL):	6 mg/m ³	Corteva OEL
Clopyralid	1702-17-6	8-hr TWA	10 mg/m ³	Corteva OEL
Ethylene glycol monobutyl ether	111-76-2	Long-term exposure limit (8-hour TWA reference period)	25 ppm 123 mg/m ³	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		Short-term exposure limit (15-minute reference period)	50 ppm 246 mg/m ³	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		Limit Value - eight hours	20 ppm 98 mg/m ³	2000/39/EC
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		Short term exposure limit	50 ppm 246 mg/m ³	2000/39/EC
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
Ethylene glycol monobutyl ether	111-76-2	butoxyacetic acid: 240 Millimoles per mole creatinine (Urine)	After shift	GB EH40 BAT

Derived No Effect Level (DNEL)

Substance name	End Use	Exposure routes	Potential health effects	Value
Ethylene glycol	Workers	Inhalation	Long-term systemic	98 mg/m ³

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1 Revision Date: 22.07.2026 SDS Number: 800080004766 Date of last issue: 14.11.2023
Date of first issue: 14.11.2023

monobutyl ether			effects	
	Workers	Inhalation	Acute systemic effects	663 mg/m3
	Workers	Inhalation	Acute local effects	246 mg/m3
	Workers	Skin contact	Long-term systemic effects	75 mg/kg bw/day
	Workers	Skin contact	Acute systemic effects	89 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	49 mg/m3
	Consumers	Inhalation	Acute systemic effects	426 mg/m3
	Consumers	Inhalation	Acute local effects	123 mg/m3
	Consumers	Skin contact	Long-term systemic effects	38 mg/kg bw/day
	Consumers	Skin contact	Acute systemic effects	44.5 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	3.2 mg/kg bw/day
	Consumers	Ingestion	Acute systemic effects	13.4 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Substance name	Environmental Compartment	Value
Ethylene glycol monobutyl ether	Fresh water	8.8 mg/l
	Marine water	0.88 mg/l
	Intermittent use/release	9.1 mg/l
	Sewage treatment plant	463 mg/l
	Fresh water sediment	34.6 mg/kg
	Marine sediment	3.46 mg/kg
	Soil	3.13 mg/kg
	Oral (Secondary Poisoning)	0.02 mg/kg food

8.2 Exposure controls

Appropriate 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, such as personal protective equipment (PPE)

Eye/face protection : Use chemical goggles.

Hand protection

Remarks : Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Styrene/butadiene rubber. Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1	Revision Date: 22.07.2026	SDS Number: 800080004766	Date of last issue: 14.11.2023 Date of first issue: 14.11.2023
----------------	------------------------------	-----------------------------	---

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.

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.

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.
In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: Liquid.
Colour	: Yellow
Odour	: Aromatic
Odour Threshold	: No data available
pH	: 2.04 (20 °C) Method: pH Electrode (neat)
Melting point/ range	: Not applicable
Freezing point	: No data available
Boiling point/boiling range	: No data available
Flash point	: 55.1 °C Method: Pensky-Martens Closed Cup ASTM D 93, closed cup
Evaporation rate	: No data available
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1	Revision Date: 22.07.2026	SDS Number: 800080004766	Date of last issue: 14.11.2023 Date of first issue: 14.11.2023
----------------	------------------------------	-----------------------------	---

Vapour pressure	:	No data available
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	1.03 g/mL
Solubility(ies)		
Water solubility	:	emulsifiable
Auto-ignition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	3.2 mm ² /s (40 °C)
Explosive properties	:	No
Oxidizing properties	:	No data available

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

No decomposition if stored and applied as directed.
Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Stable under recommended storage conditions. No hazards to be specially mentioned.
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10.4 Conditions to avoid

Conditions to avoid	:	Heat, flames and sparks.
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10.5 Incompatible materials

Materials to avoid	:	Strong acids Strong bases
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10.6 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 oxides

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Components:

Triclopyr-2-butoxyethyl ester:

- Acute oral toxicity : LD50 (Rat, male and female): 500 mg/kg
Method: OECD Test Guideline 423
- 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
- LD50 (Rat): > 5,000 mg/kg

Clopyralid:

- Acute oral toxicity : LD50 (Rat, female): > 5,000 mg/kg
- Acute inhalation toxicity : LC50 (Rat, male and female): > 5.47 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Symptoms: No deaths occurred at this concentration., The LC50 value is greater than the Maximum Attainable Concentration.
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Rat, female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity

Hydrocarbons, C9, aromatics:

- Acute oral toxicity : LD50 (Rat): 3,500 mg/kg
- Acute inhalation toxicity : Remarks: Vapor concentrations are attainable which could be hazardous on single exposure.
May cause respiratory irritation and central nervous system

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1	Revision Date: 22.07.2026	SDS Number: 800080004766	Date of last issue: 14.11.2023 Date of first issue: 14.11.2023
----------------	------------------------------	-----------------------------	---

depression.
Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.

LC50 (Rat): > 10.2 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 3,160 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Acute oral toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 3.551 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: For similar material(s):

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

Acute oral toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD 401 or equivalent
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute oral toxicity
Remarks: For similar material(s):

Acute dermal toxicity : LD50 (Rat, male and female): > 1,000 - < 1,600 mg/kg
Method: OECD 402 or equivalent
Remarks: For similar material(s):

Hydrocarbons, C10, aromatics, <1% naphthalene:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Remarks: For similar material(s):

Acute inhalation toxicity : LC50 (Rat): > 4.688 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Assessment: The substance or mixture has no acute

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

inhalation toxicity
Remarks: For similar material(s):
Maximum attainable concentration.

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: For similar material(s):

Ethylene glycol monobutyl ether:

Acute oral toxicity : Acute toxicity estimate: 1,200 mg/kg
Method: Acute toxicity estimate according to Regulation (EC) No. 1272/2008

LD50 (Guinea pig): 1,400 mg/kg
Method: OECD Test Guideline 401

LD50 (Rat): 470 - 2,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 3.1 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Guinea pig, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Components:

Triclopyr-2-butoxyethyl ester:

Species : Rabbit
Result : No skin irritation

Clopyralid:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Hydrocarbons, C9, aromatics:

Result : No skin irritation

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Species : Rabbit
Result : Skin irritation
Remarks : For similar material(s):

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

Species : Rabbit
Result : Skin irritation

Ethylene glycol monobutyl ether:

Result : Skin irritation

Serious eye damage/eye irritation

Components:

Triclopyr-2-butoxyethyl ester:

Species : Rabbit
Result : No eye irritation

Clopyralid:

Species : Rabbit
Method : OECD Test Guideline 405
Result : Corrosive

Hydrocarbons, C9, aromatics:

Result : No eye irritation

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Species : Rabbit
Result : Corrosive
Remarks : For similar material(s):

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

Species : Rabbit
Result : Corrosive

Ethylene glycol monobutyl ether:

Result : Eye irritation

Respiratory or skin sensitisation

Product:

Test Type : Local lymph node assay
Species : Mouse
Assessment : The product is a skin sensitiser, sub-category 1B.
Method : OECD Test Guideline 429
Remarks : Information source: Internal study report

Components:

Triclopyr-2-butoxyethyl ester:

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

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

Clopyralid:

Test Type	: Magnusson & Kligman method
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: Does not cause skin sensitisation.

Test Type	: Local lymph node assay (LLNA)
Species	: Mouse
Method	: OECD Test Guideline 429
Result	: Does not cause skin sensitisation.

Hydrocarbons, C9, aromatics:

Species	: Guinea pig
Result	: Does not cause skin sensitisation.
Remarks	: For similar material(s):

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Test Type	: Buehler Test
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: Does not cause skin sensitisation.
Remarks	: For similar material(s):

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

Species	: Guinea pig
Result	: Does not cause skin sensitisation.
Remarks	: For similar material(s):

Hydrocarbons, C10, aromatics, <1% naphthalene:

Species	: Guinea pig
Result	: Does not cause skin sensitisation.
Remarks	: For similar material(s):

Ethylene glycol monobutyl ether:

Species	: Guinea pig
Result	: Does not cause skin sensitisation.

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.
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Clopyralid:

Germ cell mutagenicity-	: In vitro genetic toxicity studies were negative., Animal genetic
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SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1	Revision Date: 22.07.2026	SDS Number: 800080004766	Date of last issue: 14.11.2023 Date of first issue: 14.11.2023
----------------	------------------------------	-----------------------------	---

Assessment toxicity studies were negative.

Hydrocarbons, C9, aromatics:

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

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

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

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

Germ cell mutagenicity-Assessment : For similar material(s);, In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

Hydrocarbons, C10, aromatics, <1% naphthalene:

Germ cell mutagenicity-Assessment : For similar material(s);, In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

Ethylene glycol monobutyl ether:

Germ cell mutagenicity-Assessment : In vitro genetic toxicity studies were predominantly 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.

Clopyralid:

Carcinogenicity - Assessment : Did not cause cancer in laboratory animals.

Hydrocarbons, C9, aromatics:

Carcinogenicity - Assessment : Xylene was not found to be carcinogenic in a National Toxicology Program bioassay in rats and mice.

Hydrocarbons, C10, aromatics, <1% naphthalene:

Carcinogenicity - Assessment : Contains naphthalene which has caused cancer in some laboratory animals., However, the relevance of this to humans is unknown.

Ethylene glycol monobutyl ether:

Carcinogenicity - Assessment : In long-term animal studies with ethylene glycol butyl ether, small but statistically significant increases in tumors were observed in mice but not rats. The effects are not believed to be relevant to humans. If the material is handled in

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

accordance with proper industrial handling procedures, exposures should not pose a carcinogenic risk to man.

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.

Clopyralid:

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure.

Hydrocarbons, C9, aromatics:

Reproductive toxicity - Assessment : In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. Has caused birth defects in laboratory animals only at doses producing severe toxicity in the mother., Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Reproductive toxicity - Assessment : For similar material(s);, Did not cause birth defects or any other fetal effects in laboratory animals.

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

Reproductive toxicity - Assessment : For similar material(s);, In animal studies, did not interfere with reproduction. For similar material(s);, Did not cause birth defects or any other fetal effects in laboratory animals.

Hydrocarbons, C10, aromatics, <1% naphthalene:

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. For similar material(s);, Did not cause birth defects or any other fetal effects in laboratory animals.

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

Ethylene glycol monobutyl ether:

Reproductive toxicity - Assessment : 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.

STOT - single exposure

Components:

Triclopyr-2-butoxyethyl ester:

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

Clopyralid:

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

Hydrocarbons, C9, aromatics:

Assessment : May cause respiratory irritation., May cause drowsiness or dizziness.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Exposure routes : Inhalation
Assessment : May cause respiratory irritation.

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

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

Hydrocarbons, C10, aromatics, <1% naphthalene:

Exposure routes : Inhalation
Assessment : May cause drowsiness or dizziness.

Ethylene glycol monobutyl ether:

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

STOT - repeated exposure

Components:

Triclopyr-2-butoxyethyl ester:

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

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

Repeated dose toxicity

Components:

Hydrocarbons, C9, aromatics:

Remarks : In animals, effects have been reported on the following organs:
Blood.
Kidney.
Liver.
Xylene is reported to have caused hearing loss in laboratory animals upon exposure to high concentrations; such effects have not been reported in humans.
For the minor component(s):
Cumene.
Eye.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Remarks : For similar material(s):
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

Remarks : For similar material(s):
In animals, effects have been reported on the following organs:
Kidney.

Hydrocarbons, C10, aromatics, <1% naphthalene:

Remarks : Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Ethylene glycol monobutyl ether:

Remarks : In animals, effects have been reported on the following organs: blood (hemolysis) and secondary effects on the kidney and liver.
Human red blood cells have been shown to be significantly less sensitive to hemolysis than those of rodents and rabbits.

Aspiration hazard

Components:

Triclopyr-2-butoxyethyl ester:

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

Clopyralid:

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

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1	Revision Date: 22.07.2026	SDS Number: 800080004766	Date of last issue: 14.11.2023 Date of first issue: 14.11.2023
----------------	------------------------------	-----------------------------	---

Hydrocarbons, C9, aromatics:

May be fatal if swallowed and enters airways.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

May be harmful if swallowed and enters airways.

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

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

Hydrocarbons, C10, aromatics, <1% naphthalene:

May be fatal if swallowed and enters airways.

Ethylene glycol monobutyl ether:

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

Endocrine disrupting properties

Product:

Assessment : This substance/mixture does not contain components considered to have endocrine disrupting properties for human health according to UK REACH Article 57(f), at levels of 0.1% or higher.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	: LC50 (Oncorhynchus mykiss (rainbow trout)): 1.47 mg/l Exposure time: 96 h Test Type: flow-through test Method: OECD Test Guideline 203 Remarks: Information source: Internal study report
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 21.6 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 Remarks: Information source: Internal study report
Toxicity to algae/aquatic plants	: ErC50 (Myriophyllum spicatum): 0.190 mg/l Exposure time: 14 d Remarks: Information source: Internal study report ErC50 (Lemna gibba (duckweed)): 61.6 mg/l Exposure time: 14 d Remarks: Information source: Internal study report
Toxicity to soil dwelling	: LC50: 224 mg/kg

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

organisms
Exposure time: 14 d
Species: *Eisenia fetida* (earthworms)
Remarks: Information source: Internal study report

Toxicity to terrestrial organisms : oral LD50: 1156 mg/kg bodyweight.
Exposure time: 14 d
Species: *Colinus virginianus* (Bobwhite quail)
GLP:yes
Remarks: Information source: Internal study report

oral LD50: > 370 µg/bee
Exposure time: 48 h
Species: *Apis mellifera* (bees)
Remarks: Information source: Internal study report

contact LD50: > 413 µg/bee
Exposure time: 48 h
Species: *Apis mellifera* (bees)
Remarks: Information source: Internal study report

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: 0.0263 mg/l
Exposure time: 21 d
Species: Rainbow trout (*Oncorhynchus mykiss*)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 1.6 mg/l
End point: number of offspring
Exposure time: 21 d

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1	Revision Date: 22.07.2026	SDS Number: 800080004766	Date of last issue: 14.11.2023 Date of first issue: 14.11.2023
----------------	------------------------------	-----------------------------	---

Species: *Daphnia magna* (Water flea)

LOEC: 5.1 mg/l

End point: number of offspring

Exposure time: 21 d

Species: *Daphnia magna* (Water flea)

MATC (Maximum Acceptable Toxicant Level): 2.9 mg/l

End point: number of offspring

Exposure time: 21 d

Species: *Daphnia magna* (Water flea)

M-Factor (Chronic aquatic toxicity) : 10

Toxicity to soil dwelling organisms : LC50: > 1,042 mg/kg
Exposure time: 14 d
Species: *Eisenia fetida* (earthworms)

Toxicity to terrestrial organisms : oral LD50: 735 mg/kg bodyweight.
Exposure time: 21 d
Species: *Colinus virginianus* (Bobwhite quail)

dietary LC50: 1890 mg/kg diet.
Exposure time: 8 d
Species: *Colinus virginianus* (Bobwhite quail)

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

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

Clopyralid:

Toxicity to fish : LC50 (*Oncorhynchus mykiss* (rainbow trout)): > 99.9 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): > 99 mg/l
Exposure time: 48 h
Test Type: static test

Toxicity to algae/aquatic plants : ErC50 (*Pseudokirchneriella subcapitata* (green algae)): 33.1 mg/l
End point: Growth rate inhibition
Exposure time: 96 h

NOEC (*Myriophyllum spicatum*): 0.0089 mg/l

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1	Revision Date: 22.07.2026	SDS Number: 800080004766	Date of last issue: 14.11.2023 Date of first issue: 14.11.2023
----------------	------------------------------	-----------------------------	---

Exposure time: 14 d
Test Type: Static
Method: OECD Test Guideline 239

ErC50 (Myriophyllum spicatum): > 3 mg/l
Exposure time: 14 d
Test Type: Static
Method: OECD Test Guideline 239

Toxicity to microorganisms : (Bacteria): > 100 mg/l

Toxicity to fish (Chronic toxicity) : NOEC: 10.8 mg/l
End point: Other
Exposure time: 34 d
Species: Pimephales promelas (fathead minnow)
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 17 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: static test
Method: OECD Test Guideline 211 or Equivalent

M-Factor (Chronic aquatic toxicity) : 10

Toxicity to soil dwelling organisms : LC50: > 1,000 mg/kg
Exposure time: 14 d
End point: survival
Species: Eisenia fetida (earthworms)

Toxicity to terrestrial organisms : oral LD50: 1465 mg/kg bodyweight.
Species: Anas platyrhynchos (Mallard duck)

dietary LC50: > 5000 mg/kg diet.
Species: Anas platyrhynchos (Mallard duck)

oral LD50: > 100 micrograms/bee
Exposure time: 48 h
End point: mortality
Species: Apis mellifera (bees)

contact LD50: > 98.1 micrograms/bee
Exposure time: 48 h
Species: Apis mellifera (bees)

Hydrocarbons, C9, aromatics:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 9.22 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203 or Equivalent

Toxicity to algae/aquatic : ErC50 (Pseudokirchneriella subcapitata (green algae)): 2.9

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1	Revision Date: 22.07.2026	SDS Number: 800080004766	Date of last issue: 14.11.2023 Date of first issue: 14.11.2023
----------------	------------------------------	-----------------------------	---

plants
mg/l
Exposure time: 72 h
Remarks: For similar material(s):

Toxicity to terrestrial organisms : Remarks: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

dietary LC50: > 6500 mg/kg diet.
Exposure time: 8 d
Species: *Colinus virginianus* (Bobwhite quail)

oral LD50: > 2150 mg/kg bodyweight.
Exposure time: 21 d
Species: *Colinus virginianus* (Bobwhite quail)

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Toxicity to fish : LC50 (*Danio rerio* (zebra fish)): 14.8 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: For similar material(s):

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 7.7 mg/l
Exposure time: 48 h
Test Type: Static
Remarks: For similar material(s):

Toxicity to algae/aquatic plants : EC50 (*Raphidocelis subcapitata* (freshwater green alga)): 16.06 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: Static
Method: OECD Test Guideline 201
Remarks: For similar material(s):

NOEC (*Raphidocelis subcapitata* (freshwater green alga)): 1.8 mg/l
Exposure time: 72 h
Test Type: Static
Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity) : NOEC: >= 0.71 mg/l
Exposure time: 35 d
Species: *Danio rerio* (zebra fish)
Test Type: semi-static test
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10: 1.3 mg/l
End point: reproduction rate
Exposure time: 21 d
Species: *Daphnia magna*

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

Test Type: semi-static test
Method: OECD Test Guideline 211
Remarks: For similar material(s):

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

Toxicity to fish : Remarks: 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 (zebra fish (Brachydanio rerio)): 31.6 mg/l
Exposure time: 96 h
Remarks: For similar material(s):

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 62 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 29 mg/l
End point: Growth rate inhibition
Exposure time: 96 h
Remarks: For similar material(s):

Toxicity to microorganisms : EC50 (activated sludge): 550 mg/l
End point: Respiration rates.
Exposure time: 3 h
Remarks: For similar material(s):

Toxicity to fish (Chronic toxicity) : NOEC: 0.23 mg/l
End point: survival
Exposure time: 72 d
Species: Rainbow trout (Salmo gairdneri)
Remarks: For similar material(s):

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 1.18 mg/l
End point: number of offspring
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Remarks: For similar material(s):

Hydrocarbons, C10, aromatics, <1% naphthalene:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2 - 5 mg/l
Exposure time: 96 h
Remarks: For similar material(s):

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna): 3 - 10 mg/l
Exposure time: 48 h
Remarks: For similar material(s):

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 11 mg/l
Exposure time: 72 h
Remarks: For similar material(s):

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

Ethylene glycol monobutyl ether:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1,464 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,550 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): 911 mg/l
End point: Biomass
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
- Toxicity to microorganisms : IC50 (Bacteria): > 1,000 mg/l
Test Type: Growth inhibition
- Toxicity to fish (Chronic toxicity) : NOEC: > 100 mg/l
Exposure time: 21 d
Species: Danio rerio (zebra fish)
Test Type: semi-static test
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 100 mg/l
End point: Other
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Method: OECD Test Guideline 211 or Equivalent

12.2 Persistence and degradability

Components:

Triclopyr-2-butoxyethyl ester:

- Biodegradability : Result: Not 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

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version 1.1	Revision Date: 22.07.2026	SDS Number: 800080004766	Date of last issue: 14.11.2023 Date of first issue: 14.11.2023
----------------	------------------------------	-----------------------------	---

Method: Estimated.

Clopyralid:

Biodegradability : Test Type: CO2 evolution
Result: Not biodegradable
Biodegradation: 5 - 10 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: 10-day Window: Fail

Biochemical Oxygen Demand (BOD) : 0 mg/g 0 %
Incubation time: 20 d

Chemical Oxygen Demand (COD) : 0.73 kg/kg
ThOD : 0.71 kg/kg

Stability in water : Test Type: Hydrolysis
pH: 4 - 9
Method: OECD Test Guideline 111
Remarks: Stable

Photodegradation : Test Type: Half-life (direct photolysis)
Remarks: No photodegradation

Hydrocarbons, C9, aromatics:

Biodegradability : Result: Not biodegradable
Remarks: For the major component(s):
Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).
Biodegradation under aerobic static laboratory conditions is low (BOD20 or BOD28/ThOD between 2.5 and 10%).

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 63.63 %
Exposure time: 29 d
Method: OECD Test Guideline 301B
Remarks: For similar material(s):
10-day Window: Pass

Chemical Oxygen Demand (COD) : 2.890 mg/g

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

Biodegradability : Result: Not biodegradable
Biodegradation: 2.9 %
Exposure time: 28 d
Method: OECD Test Guideline 301E or Equivalent
Remarks: 10-day Window: Fail

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

Hydrocarbons, C10, aromatics, <1% naphthalene:

Biodegradability : Remarks: Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability).

Ethylene glycol monobutyl ether:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 90.4 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: 10-day Window: Pass

Biochemical Oxygen Demand (BOD) : 5.2 %
Incubation time: 5 d

57 %
Incubation time: 10 d

72.2 %
Incubation time: 20 d

Chemical Oxygen Demand (COD) : 2.21 mg/g
Method: Dichromates

ThOD : 2.30 kg/kg

12.3 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

Clopyralid:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): < 1
Method: Measured

Partition coefficient: n-octanol/water : log Pow: -2.63

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Partition coefficient: n-octanol/water : log Pow: < 3.44 (20 °C)

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

Partition coefficient: n-octanol/water : log Pow: 4.6
Method: OECD Test Guideline 107 or Equivalent

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

Ethylene glycol monobutyl ether:

Bioaccumulation : Bioconcentration factor (BCF): 3.2

Partition coefficient: n-octanol/water : log Pow: 0.81
Method: Measured

12.4 Mobility in soil

Components:

Clopyralid:

Distribution among environmental compartments : Koc: 4.9 ml/g
Stability in soil : Test Type: Field Dissipation
Dissipation time: 0.16 - 23.7 Days

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Distribution among environmental compartments : Koc: 527.3 ml/g

Ethylene glycol monobutyl ether:

Distribution among environmental compartments : Koc: 67
Method: Estimated.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts:

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

Ethylene glycol monobutyl ether:

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

12.6 Other adverse effects

Endocrine disrupting properties

Product:

Assessment : This substance/mixture does not contain components considered to have endocrine disrupting properties for environment according to UK REACH Article 57(f) at levels of 0.1% or higher.

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : 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

14.1 UN number

ADR	: UN 1993
RID	: UN 1993
IMDG	: UN 1993
IATA	: UN 1993

14.2 UN proper shipping name

ADR	: FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics)
RID	: FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics)
IMDG	: FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics, Triclopyr-2-butoxyethyl Ester, Clopyralid)
IATA	: Flammable liquid, n.o.s. (Hydrocarbons, C9, aromatics)

14.3 Transport hazard class(es)

	Class	Subsidiary risks
ADR	: 3	
RID	: 3	
IMDG	: 3	
IATA	: 3	

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

14.4 Packing group

ADR

Packing group	: III
Classification Code	: F1
Hazard Identification Number	: 30
Labels	: 3
Tunnel restriction code	: (D/E)

RID

Packing group	: III
Classification Code	: F1
Hazard Identification Number	: 30
Labels	: 3

IMDG

Packing group	: III
Labels	: 3
EmS Code	: F-E, <u>S-E</u>
Remarks	: Stowage category A

IATA (Cargo)

Packing instruction (cargo aircraft)	: 366
Packing instruction (LQ)	: Y344
Packing group	: III
Labels	: Flammable Liquids

IATA (Passenger)

Packing instruction (passenger aircraft)	: 355
Packing instruction (LQ)	: Y344
Packing group	: III
Labels	: Flammable Liquids

14.5 Environmental hazards

ADR

Environmentally hazardous	: yes
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RID

Environmentally hazardous	: yes
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IMDG

Marine pollutant	: yes(Triclopyr-2-butoxyethyl Ester, Clopyralid)
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14.6 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.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant EU provisions transposed through retained EU law

UK REACH Candidate list of substances of very high concern (SVHC) for Authorisation	:	Not applicable
Regulation (EU) No 2024/590 on substances that deplete the ozone layer	:	Not applicable
UK REACH List of substances subject to authorisation (Annex XIV)	:	Not applicable
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	P5c	FLAMMABLE LIQUIDS
	E1	ENVIRONMENTAL HAZARDS

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

The substance is evaluated within the frame of the provisions of Regulation (EC) No. 1107/2009. Refer to the label for exposure assessment information.

SECTION 16: Other information

Full text of H-Statements

H226	:	Flammable liquid and vapour.
H302	:	Harmful if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H312	:	Harmful in contact with skin.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H331	:	Toxic if inhaled.
H335	:	May cause respiratory irritation.
H336	:	May cause drowsiness or dizziness.
H373	:	May cause damage to organs through prolonged or repeated exposure.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.
H411	:	Toxic to aquatic life with long lasting effects.
H412	:	Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
1.1	22.07.2026	800080004766	Date of first issue: 14.11.2023

Asp. Tox. : Aspiration hazard
Eye Dam. : Serious eye damage
Eye Irrit. : Eye irritation
Flam. Liq. : Flammable liquids
PMT : Persistent, mobile and toxic
Skin Irrit. : Skin irritation
Skin Sens. : Skin sensitisation
STOT RE : Specific target organ toxicity - repeated exposure
STOT SE : Specific target organ toxicity - single exposure
2000/39/EC : Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
Corteva OEL : Corteva Occupational Exposure Limit
GB EH40 : UK. EH40 WEL - Workplace Exposure Limits
GB EH40 BAT : UK. Biological monitoring guidance values
2000/39/EC / TWA : Limit Value - eight hours
2000/39/EC / STEL : Short term exposure limit
Corteva OEL / STEL : Short Term Exposure Limit (STEL):
Corteva OEL / TWA : 8-hr TWA
GB EH40 / TWA : Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL : Short-term exposure limit (15-minute reference period)
ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; ASTM - American Society for the Testing of Materials; ECx - Concentration associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; 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; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; 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; NOEC - Non-Observed Effective Concentration; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; (Q)SAR - (Quantitative) Structure Activity Relationship; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SDS - Safety Data Sheet; UN - United Nations.

Further information

Classification of the mixture:

Flam. Liq. 3	H226
Skin Irrit. 2	H315
Eye Irrit. 2	H319
Skin Sens. 1B	H317
STOT SE 3	H336
STOT SE 3	H335
STOT RE 2	H373
Asp. Tox. 1	H304
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Classification procedure:

Based on product data or assessment
Based on product data or assessment
Based on product data or assessment
Based on product data or assessment
Calculation method
Calculation method
Calculation method
Calculation method
Based on product data or assessment
Based on product data or assessment

SAFETY DATA SHEET

According to UK REACH and COSHH Regulations, and their amendments



GRAZON™ PRO

Version	Revision Date:	SDS Number:	Date of last issue: 14.11.2023
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Product code: R2A-3-1 (GF-1652)

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