

SAFETY DATA SHEET

RAVEN

Reg. No. / Nr L11908 Act No. 36 of 1947 / Wet Nr 36 van 1947

Section 1. Identification of the material and the supplier

Product: **RAVEN**
Product Use: Herbicide
Restriction of Use: Refer to Section 15

Supplier: **Agritech Bioscience (Pty) Ltd. t/a Carabiner**
PO Box 1224
Isando, 1600
South Africa
www.carabiner.co.za

Emergency No: POISON CENTRE (UNITAS HOSPITAL) 012 664 1100
TYGERBERG 021 931 6129
RED CROSS 021 689 5227
RAPID SPILL RESPONSE 0800 775 3305
GRIFFON POISON CENTRE 082 446 8946

Date of SDS Preparation: 05 February 2026

Section 2. Hazards Identification

Classification of the substance or mixture

Globally Harmonised System, EU (GHS) and according to regulation EC No 1272/2008 [CLP]

Flammable liquid Category 3; H226
Eye irritation Category 2; H319
STOT RE Category 2; H373
Short - term (acute) aquatic hazard Category 1; H400
Long - term (chronic) aquatic hazard Category 1; H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

Label elements:

Globally Harmonised System, EU (GHS) and according to regulation EC No 1272/2008 [CLP]

Pictograms



Signal Word: **WARNING**

Hazard statement(s)

H226: Flammable liquid and vapour.

H319: Causes serious eye irritation.

H373: May cause damage to organs through prolonged or repeated exposure

H410: Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)**General:**

P101 - If medical advice is needed, have product container or label at hand.

P102 - Keep out of reach of children.

P103 - Read carefully and follow all instructions.

Prevention:

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 - Keep container tightly closed.

P240 - Ground and bond container and receiving equipment.

P241 - Use explosion-proof electrical/ventilating/lighting/equipment.

P242 - Use only non-sparking tools.

P243 - Take action to prevent static discharges.

P260 - Do not breathe dust/fumes/gas/mist/vapours/spray.

P264 + P265 - Wash hands thoroughly after handling. Do not touch eyes.

P273 - Avoid release to the environment.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

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

P319 - Get medical help if you feel unwell.

P337 + P317 - If eye irritation persists: Get medical help.

P370 + P378 - In case of fire: Use Carbon dioxide, dry chemical, foam, water fog or halon extinguishing agents to extinguish.

P391 - Collect spillage.

Storage:

P403 + P235 - Store in a well-ventilated place. Keep cool.

Disposal:

P501 - Dispose of contents/container in accordance with national regulations.

Supplemental Hazard Statements: none

2.3 Other**Other hazards**

No other hazards known

Section 3.	Composition / Information on Hazardous Ingredients
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Mixture

Water soluble herbicide

Triclopyr (as butoxyethyl ester) 360 g/L

Globally Harmonised System, EU (GHS) and according to regulation EC No 1272/2008 [CLP]

Ingredients	Concentration of hazardous ingredient in composition	CAS Number	Classification
Triclopyr triethylamine salt	> 40.0%	57213-69-1	Flammable liquid Cat. 3.; H226 Eye Irrit. Cat. 2. H319 STOT-RE Cat. 2, Kidneys. H373 Acute aquatic Cat. 1; H400 Chronic aquatic Cat.1; H410
Ethylene glycol	>1-<10%	107-21-1	Acute Tox Oral Cat. 4.; H302
Ethanol	>1-<10%	64-17-5	Flammable liquid Cat. 2.; H225
EDTA	>1-<10%	69029-39-6	Eye Irrit. Cat. 2.; H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

Section 4. First Aid Measures

If medical advice is needed, have product container or label at hand. Provide medical personnel with the container label, product name or safety data sheet (SDS) when seeking medical attention.

Remove patient from exposed area. Never give fluids or induce vomiting if patient is unconscious or is having convulsions. This product contains a Pyridinecarboxylic acid herbicide and solvent. 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.

Routes of Exposure:

- If in Eyes Flush eyes immediately with plenty of clean, room temperature water for at least 15 minutes holding eyelids open. Remove contact lenses if present, after first 1-2 minutes, and then continue rinsing. **Seek medical attention.**
- If on Skin Contaminated clothing and shoes should immediately be removed, and the body, clothes and shoes should be flushed with large amounts of water. Wash thoroughly with plenty of water. Wash contaminated clothing before re-use. Persons providing first aid must wear gloves to avoid self-contamination. **Seek medical attention.**
- If Swallowed Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless instructed to do so by the poison control centre or doctor. Never give anything by mouth to an unconscious person. Aspiration into lungs may cause pneumonitis. Have the patient rinse their mouth thoroughly with water if alert and conscious. **Seek medical attention.**
- If Inhaled Move the patient to fresh air and keep them warm and at rest. If the patient is not breathing, call an emergency responder or ambulance, then apply artificial respiration. If mouth-to-mouth resuscitation is used, use rescuer protection (pocket mask etc.) **Seek medical attention.**

Most important symptoms and effects, both acute and delayed

This product contains a Pyridinecarboxylic acid herbicide and solvent.

Treatment:

No specific antidote. Treat symptomatically and supportively. If large amounts have been ingested, and if lavage is performed, endotracheal and/or oesophageal control is suggested. The dangers of lung aspiration must be weighed against the toxicity when considering emptying the stomach. For further information on the treatment of poisoning refer to the product Safety Data Sheet provided.

Section 5. Fire Fighting Measures

Hazards from products	Under fire conditions some components of this product may decompose. The smoke may consist of unidentified toxic and/or irritating compounds. Combustion products may include, but are not limited to, Nitrogen oxides, Hydrogen chloride, Carbon monoxide, Carbon dioxide. This material will not burn until the water has evaporated. Residue can burn. May produce flash fire. Vapours are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic flames.
Suitable Extinguishing media	Small fires: Foam, Carbon dioxide, dry powder or halon extinguishing agents. Large fires: Foam or water fog. Avoid the use of a water jet. Avoid the accumulation of polluted run-off from the site. Remove the container from the fire if possible and without risk. Contain run-off water.
Recommended protective clothing & Precautions for firefighters	Remove spectators from surrounding area. Isolate the fire area and evacuate downwind. Keep out of low areas where gases (fumes) can accumulate. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical, or foam. Eliminate all ignition sources in the immediate area. Use a recommended extinguishing agent for the type of surrounding fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal. Avoid inhaling hazardous vapours and fumes from burning materials. Keep upwind. Remove container from fire area if possible and without risk. Water can be used to cool unaffected containers but must be contained for later disposal. Do not scatter the material. Avoid pollution of waterways. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecotoxicological Information" sections of this SDS. Wear positive pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during firefighting operations. If contact is likely, change to full chemical resistant firefighting 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. For personal protection see Section 8.

Section 6. Accidental Release Measures

Personal precautions:

Evacuate the area. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. Do not smoke in the area. Vapor explosion hazard. Avoid contact with eyes and skin. When opening the container, preparing the spray, and using the prepared spray, wear cotton overalls buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves, a face shield, or goggles. Wash hands after use. After each day's use, wash gloves, face shield or goggles and contaminated clothing. For personal protection see Section 8.

Environmental precautions:

This product is considered a water pollutant. Do not contaminate waterways, drains and groundwater. If contamination of waterways, drains, rivers, or lakes is unavoidable, warn the local authorities (Police and Department of Water/Environmental affairs) immediately. Do not discharge into the subsoil/soil.

Spill and Disposal procedures:

Cleaning procedure:

Do not eat, drink or smoke during the clean-up process. Clear area of unprotected personnel and ensure adequate ventilation. Eliminate all sources of ignition. Ground and bond all containers and handling equipment. Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately. Contain spilled material if possible. Pump with explosion proof equipment. If available, use foam to smother or suppress.

Small spills: Absorb with materials such as clay, dirt, and sand. Sweep up and collect in suitable and properly labelled containers.

Large spills: Contact local authorities for clean -up assistance.

Used absorbent material and washings should be stored in labelled, sealable containers until these can be disposed of according to local regulations. Open burning or dumping of this material is prohibited.

In situations where product comes in contact with water, contain contaminated water for later disposal. Prevent material from spreading by damming in with absorptive material. Do not flush spilled material into drains. Keep spectators away and upwind. To decontaminate spill area, tools and equipment, wash with a suitable solution (i.e., organic solvent, detergent bleach, or caustic). Add the solution to the drums already collected. Label drums with its content and dispose it in accordance with local regulations.

Open burning or dumping of this material is prohibited. Do not get water inside containers.

Reference to other sections

Information regarding safe handling, see section 7.

Information regarding personal protective equipment, see section 8.

Information regarding waste disposal, see section 13.

Section 7. Handling and Storage

Precautions for Handling:

KEEP OUT OF SIGHT AND REACH OF CHILDREN and animals. Do not allow access to this product by children, uninformed persons, untrained personnel, unauthorised personnel, or animals under any circumstances. Avoid contact with eyes, skin, and clothing. Ventilation required. Avoid breathing vapor

or mist. Keep away from: heat, sparks, open flame, and direct sunlight. Do not swallow. No smoking, open flames, or sources of ignition to be permitted in the handling and storage area.

Wash thoroughly following handling and before eating, drinking, chewing gum, smoking, or using the toilet.

APPROVED HANDLER: This product must be under the control of an approved handler when applied in a wide dispersive manner; or used by a commercial contractor. Operators should change and wash clothing daily.

BEWARE: Spray drift hazard. Apply this product carefully. Spray drift may cause serious damage to other desirable plants.

Containers, including those that have been emptied, may contain vapours. DO NOT cut, drill, grind, weld, or perform similar operations on or near empty containers. Electrically ground and bond all equipment. Vapours are heavier than air and may travel long distances and accumulate in low lying areas.

Ignition and/or flash back may occur. The use of non-sparking or explosion-proof equipment is recommended.

Precautions for Storage:

Store in original tightly closed container and in a locked, dry, cool, well-ventilated area away from foodstuffs, fertilisers, seeds, in direct sunlight or near potable water supplies. Remove all sources of ignition from the storage area. Keep away from children or uninformed persons. Avoid extreme temperatures. Comply with local regulations.

Specific end use(s): Use only according to the label.

Section 8 Exposure Controls / Personal Protection

Occupational exposure limits:

Component	Type	Value
Triclopyr triethylamine salt	TWA	2 mg/m ³
Ethanol	TWA	1900 mg/m ³

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Engineering Controls / Industrial Hygiene

Comply with occupational safety, environmental, fire and other applicable regulations.

It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

Personal Protection Equipment

Eyes	The use of safety goggles with side-shields is recommended.
Hands	Use gloves chemically resistant to this material when prolonged or

	frequently repeated contact could occur. Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule, it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also consider 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	Body protection (chemical protection suit, boots) must be chosen depending on activity and possible exposure. Decontaminate contaminated clothing, remove, and dispose of in accordance with the manufacturer's instructions.
Respiratory	Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects such as respiratory irritation or discomfort have been experienced or, where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air purifying respirator. The following should be effective types of air purifying respirators: Organic vapor cartridge with a particulate pre-filter, type AP2.
General	Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

Section 9 Physical and Chemical Properties

Appearance	Liquid
Colour	Pale yellow to light amber.
Odour	Characteristic
Odour Threshold	No data available
pH	5.0 – 8.0
Boiling/Melting Point	No data available
Freezing Point	No data available
Flash Point	$\geq 23\text{ }^{\circ}\text{C}$ and $\leq 60\text{ }^{\circ}\text{C}$

Flammability	GHS: Flammable liquid Cat. 3
Upper and Lower Explosive Limits	No data available
Vapour Pressure	No data available
Vapour Density	No data available
Density	1.2
Water Solubility	Soluble in water
Partition Coefficient:	No data available
Ignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Particle Characteristics	No data available
Surface tension	No data available

Section 10. Stability and Reactivity

Stability of substance	Stable for 24 months under normal use and standard conditions.
Possibility of hazardous reactions	Polymerisation will not occur.
Conditions to avoid	Protect from extreme temperatures, direct sunlight, hot surfaces, open flames, and sources of ignition. Active ingredient decomposes at elevated temperatures.
Incompatible materials	Strong basic, acidic, or oxidising materials. Store only in the original container.
Hazardous decomposition products	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products include, but are not limited to: Carbon monoxide, Carbon dioxide, Hydrogen chloride and Nitrogen oxides.

Section 11 Toxicological Information

Acute Effects:

Oral	GHS: Not classified
Dermal	GHS: Not classified
Inhalation	GHS: Not classified
Eye	GHS: Category 2
Skin	GHS: Not classified

Chronic Effects:

Carcinogenicity	GHS: Not classified
Reproductive Toxicity	GHS: Not classified
Germ Cell Mutagenicity	GHS: Not classified
Aspiration	GHS: Not classified
STOT/SE	GHS: Not classified
STOT/RE	GHS: Category 2

Section 12. Ecotoxicological Information

Ecological effects information	GHS: Short - term (acute) aquatic hazard Category 1 GHS: Long - term (chronic) aquatic hazard Category 1
Persistence and degradability	Information based on Triclopyr active:

	Animals: In mammals, following oral administration, excretion is primarily via the urine as the unchanged compound. Plants: In plants, DT₅₀ c. 3–10 d. The main metabolite is 3,5,6-trichloro-2-methoxypyridine. Soil/Environment: In soil, fairly rapid degradation by microbial activity, DT₅₀ (ave.) 46 d, depending on soil and climatic conditions. The major degradation product is 3,5,6-trichloro-2-pyridinol (which has a soil DT₅₀ of 30–90 d), with a smaller amount of 3,5,6-trichloro-2-methoxypyridine. K_{oc} c. 59 ml/g; K_d c. 87 (unaged samples), c. 225 (aged) ml/g. Not persistent. Biodegradability: For similar active ingredient (s). Triclopyr. Biodegradation under aerobic static laboratory conditions is high (BOD₂₀ or BOD₂₈/ThOD > 40%). For similar active ingredient (s). Triclopyr. Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the materials not biodegradable under environmental conditions. Bioaccumulation: For similar active ingredient(s). Bioconcentration potential is low (BCF <100 or Log Pow < 3). Mobility in soil: For similar active ingredient. Potential for mobility in soil is very high (K_{oc} between 0 and 50). In natural soil and in aquatic environments, the ester and amine salt formulations rapidly convert to the acid, which in turn is neutralized to a relatively nontoxic salt. It is effectively degraded by soil micro-organisms and has a moderate persistence in soil environments. The half-life in soil ranges from 30 to 90 days, depending on soil type and environmental conditions, with an average of about 46 days. The half-life of one of the breakdown products (trichloropyridinol) in 15 soils ranged from 8 to 279 days, with 12 of the tested soils having half-lives of less than 90 days. Longer half-lives may occur in cold or arid conditions. Triclopyr is not strongly adsorbed to soil particles and has the potential to be mobile. Triclopyr is not readily hydrolysed in water at pH 5 to 9. Hydrolysis of the ester and the amine salt occurs rapidly and results in formation of triclopyr. Reported half-lives in water are 2.8 to 14.1 hours, depending on season and depth of water. The ester formulation half-life is from 12.5 to 83.4 hours. In water, the most important breakdown process is photolysis. Triclopyr is readily translocated throughout a plant after being taken up by either roots or the foliage. The estimated half-life in aboveground drying foliage as in a forest overstory is 2 to 3 months.
Bioaccumulation	No data available
Mobility in Soil	No data available
Other adverse effects	This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not

	considered to be very persistent and very bioaccumulative (vPvB).
Precautions:	Do not allow to enter waterways.

Section 13. Disposal Considerations

Disposal Method:

In accordance with local and national regulations. This product and its container must be disposed of by a waste treatment facility authorised to destroy waste in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) and the relevant waste management regulations. Do not dispose into, or allow contact with, municipal sewerage systems or open water bodies. Do not bury.

Contaminated packaging:

Containers and packages must be completely emptied before disposal.

TRIPLE RINSE THE EMPTY CONTAINER AS FOLLOWS: Invert the empty container over the spray or mixing tank and drain for at least 30 seconds after the flow has slowed down to dripping. Thereafter, rinse the empty container three times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Destroy the triple rinsed container by perforation and flattening and do not use for any other purpose. Store appropriately until it can be disposed of via an approved collector or recycler authorised to recycle or destroy waste in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) and the relevant waste management regulations. Empty containers and product should not be burnt. Do not bury, burn or donate the container to any other parties that may use it as a container for food or beverages.

Special precautions during disposal:

Waste resulting from the use of this product cannot be reused or reprocessed. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers. Triple rinse containers, add rinsate to the spray tank, then offer the container for recycling/reconditioning, or puncture top, sides and bottom and take to a waste treatment facility authorised to destroy waste in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) and the relevant waste management regulations for disposal.

If on-site container disposal is necessary, triple rinse empty container with water, add rinsate to the spray tank. Puncture top, sides and bottom, crush, and store appropriately until it can be taken to a waste treatment facility authorised to destroy waste in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) and the relevant waste management regulations for disposal.

Empty containers and product should not be burnt.

Section 14 Transport Information

Rail/road (RID/ADR):

Proper shipping name	FLAMMABLE LIQUID, N.O.S. (Ethanol, Triethylamine)
UN number	1993
Class	3
Packing group	III
Environm. Haz. Mark	Yes

Sea (IMDG code):

Proper shipping name	FLAMMABLE LIQUID, N.O.S. (Ethanol, Triethylamine)
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UN number	1993
Class	3
Packing group	III
Marine pollutant	Yes

Air (ICAO/IATA):

Proper shipping name	FLAMMABLE LIQUID, N.O.S. (Ethanol, Triethylamine)
UN number	1993
Class	3
Packing group	III
Environm. Haz. Mark	Yes

Section 15	Regulatory Information
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Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

This product must be under the care of an approved handler at all times. Records of use must be kept.

Must be tracked.

Section 16	Other Information
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Full text of H-Statements referred to under sections 2 and 3.

H226: Flammable liquid and vapour.

H302: Harmful if swallowed.

H319: Causes serious eye irritation.

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.

For proper and safe use of this product, please refer to the approval conditions laid down on the product label. The data contained in this safety data sheet is based on our current knowledge and describes the product only with regard to safety requirements. The data does not describe the products properties. Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any existing laws and legislation are observed.

The information herein is given in good faith, but no warranty, express or implied is made.

Issue Date: 05 February 2026

Review Date:

05 February 2031