

SAFETY DATA SHEET

RADIATE

Reg. No. / Nr L9569 Act No. 36 of 1947 / Wet Nr 36 van 1947

Section 1. Identification of the material and the supplier

Product: **RADIATE**
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]

Skin Irritation Category 1A; H314
Eye Irritation Category 2A; H319
STOT-SE Category 3 respiratory tract irritation; H335
STOT-RE Category 2; H373
Aspiration Hazard Category 2; H305
Short-term (Acute) Aquatic hazard Category 2;
Long-term (Chronic) Aquatic hazard Category 2; H411

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)

Product Name: Radiate
Date of SDS: 05 February 2026

H305: May be harmful if swallowed and enters airways.
H314: Causes severe skin burns and eye damage.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H373: May cause damage to organs.
H411: 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:

P260 - Do not breathe dust/fumes/gas/mist/vapours/spray.
P261 - Avoid breathing dust/fumes/gas/mist/vapours/spray.
P264 + P265 - Wash hands thoroughly after handling. Do not touch eyes.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear eye protection/face protection.

Response:

P301 + P316 - IF SWALLOWED: get emergency medical help immediately.
P301 + P317 - IF SWALLOWED: get medical help.
P301+330+331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P301+330+331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P302 + P361 + P354 - IF ON SKIN: take off immediately all contaminated clothing. Immediately rinse with water for several minutes.
P304+340 - IF INHALED: remove person to fresh air and keep comfortable for breathing.
P305+351+338 - IF IN EYES: rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P305+354+338 - IF IN EYES: immediately rinse with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P316 - Get emergency medical help immediately.
P319 - Get medical help if you feel unwell.
P321 - Specific treatment (see first aid on this label).
P331 - Do NOT induce vomiting.
P337+317 - If eye irritation persists get medical help.
P363 - Wash contaminated clothing before reuse.
P390 - Absorb spillage to prevent material-damage.
P391 - Collect spillage.

Storage:

P403+233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.

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

Mixture
Soluble concentrate
Picloram 240 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
Picloram	≤ 25%	1918-02-1	Eye Irrit. Cat. 2A; H319 STOT-SE Cat. 3 respiratory tract; H335 STOT-RE Cat. 2; H373 Aspiration Hazard Cat. 2; H305 Aquatic Acute Cat. 1.; H400 Aquatic Chronic Cat. 1.; H410
Potassium hydroxide	≥ 7 - <8%	1310-58-3	Acute Oral Tox. Cat. 4; H302 Skin Irrit. Cat. 1A; H314

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.

General Information: Remove patient from exposed area. Never give fluids or induce vomiting if patient is unconscious or is having convulsions.

Routes of Exposure:

If in Eyes	Flush eyes 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 symptoms (e.g., redness, irritation, pain etc.) persist after 15 minutes of irrigation, refer the patient to an ophthalmologist for an eye examination.
If on Skin	Immediately flush body and clothes with large amounts of clean water and soap. Remove contaminated clothing and footwear. Wash affected areas with soap and water. Do not rub skin. Persons providing first aid must wear gloves to avoid self-contamination. Seek medical attention.
If Swallowed	Rinse mouth immediately with clean water and have the patient sip a glass of water if the patient is alert and able. Do NOT induce vomiting unless instructed to do so by a medical professional. Never induce vomiting or give anything by mouth to a victim who is unconscious or is having convulsions. Seek medical attention.
If Inhaled	Move patient to fresh air. Loosen clothing around neck. Lie down and keep warm and rested. 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). **Seek medical attention.**

Most important symptoms and effects, both acute and delayed

No available data.

Treatment:

No specific antidote known. Treat symptomatically and supportively.

Section 5. Fire Fighting Measures

Hazards from products	Fire may produce irritating or poisonous vapours, mists, or other products of combustion. Full protective clothing and self-contained breathing apparatus.
Suitable Extinguishing media	Small fires: Carbon dioxide, dry powder, halon, or alcohol resistant foam. Large fires: Water spray or fog can be used to cool unaffected stock. Avoid the accumulation of polluted run-off from the site. Remove the container from the fire if possible and without risk.
Recommended protective clothing & Precautions for firefighters	Water spray can be used to cool unaffected stock, avoid the accumulation of polluted runoff from the site. Remove spectators from surrounding area. Isolate the fire area and evacuate downwind. 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. Keep upwind. Remove containers from the fire if possible and without risk. Avoid inhalation of hazardous vapours. Keep the material away from water sources and sewers. Do not touch the material and avoid breathing dusts and fumes. Do not scatter the material. Fire may generate poisonous and irritating vapours (oxides of carbon and nitrogen), mists and other products of combustion. Eliminate all ignition sources in the immediate area. Additional provisions: Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. In the event of a fire, wear full protective clothing and self-contained breathing apparatus with full-face piece operated in the pressure demand or other positive pressure mode. Personal protective equipment: Full protective clothing and self-contained breathing apparatus and turnout gear. For personal protection see Section 8.

Section 6. Accidental Release Measures

Personal precautions:

Wear appropriate safety clothing and eye/face protection. Avoid contact with skin and eyes. Do not breathe in spray or fumes. For personal protection see Section 8. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink, or smoke. Wash contaminated clothing before re-use. Prevent skin contact.

Environmental precautions:

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.

Spill and Disposal procedures:**Cleaning procedure:**

Wear protective clothing. Clear area of unprotected personnel. Contain and absorb liquid spills with sand or other non-combustible absorbent material, remove with an approved scoop or vacuum and place into specially marked waste containers for later disposal. Wash area with water and detergent and absorb with further inert material.

Large spills: For large spills, barricade the area and consult the manufacturer. Heavily contaminated soil layers have to be dug out down to clean soil. If spill does enter waterways contact the local authority. Spilled product cannot be re-used and must be disposed of by incineration or disposal in a chemical waste disposal facility. To decontaminate spill area, tools and equipment, wash with a suitable solution (i.e., organic solvent, detergent bleach, or caustic). If containers cannot be recycled, they should be disposed of together with the waste chemical.

Waste Disposal: 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.

Container Disposal: Refer to the product label for instructions. Do not transport if this container is damaged or leaking.

DO NO REUSE THE CONTAINER FOR ANY OTHER PURPOSE.

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
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Precautions for Handling:

KEEP OUT OF SIGHT AND REACH OF CHILDREN and animals. Avoid skin and eye contact and inhalation of spray mist. Use good personal hygiene. Do not consume or store food in the wok area. Wash hands and exposed skin before eating, drinking, smoking, or applying cosmetics after work. Avoid skin contact. Remove any contaminated clothing immediately and wash the skin area with plenty of water. This product must be under the control of an approved handler when applied in a wide dispersive manner; or used by a commercial contractor. BEWARE: Spray drift hazard. Apply this product carefully. Spray drift may cause serious damage to other desirable plants.

Precautions for Storage:

Store in compliance with local regulations. Store in original container tightly closed and in a locked, dry, cool, well-ventilated area away from foodstuffs, fertilisers, and seeds. Keep away from children or uninformed persons. Protect from excessive heat and cold. Do not store near food, drink, animal feedstuffs, pharmaceuticals, cosmetics, or fertilisers.

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

Section 8	Exposure Controls / Personal Protection
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Occupational exposure limits:

Component	Value type (Form of exposure)	Control parameters / permissible concentration	Basis
Picloram	TWA	10 mg/m ³ (10 ppm)	US OSHA
Potassium hydroxide	Route of exposure: Inhalation	1 mg/m ³	Derived No Effect Level

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 is recommended.
Hands	Protective (impermeable) gloves, Waterproof gloves. Wash the outside of the gloves before removing them.
Skin	For brief contact: Clean body-covering. Emergency conditions: Protective clothing impervious to this material. The selection of specific items will depend on the operation. Consult supplier to confirm that the equipment is suitable The employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this product.
Respiratory	When airborne exposure guidelines and / or comfort levels may be exceeded, use an approved air-purifying respirator. For emergency conditions: Use an approved positive-pressure self-contained breathing apparatus.
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
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Appearance	Liquid
Colour	Brown
Odour	Characteristic
Odour Threshold	No data available
pH	7 – 8.5
Boiling/Melting Point	No data available
Freezing Point	No data available
Flash Point	No data. Expected to be >93°C
Flammability	Not flammable
Upper and Lower Explosive Limits	No data available

Product Name: Radiate
Date of SDS: 05 February 2026

Vapour Pressure	No data available
Vapour Density	No data available
Density	Approximately 1.16
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	When stored appropriately this product should show no significant degradation for 2 years from the date of manufacture. Avoid temperature extremes. Avoid strong basic, acidic, or oxidising materials
Possibility of hazardous reactions	None known
Conditions to avoid	Protect from extreme temperatures, direct sunlight, open flames, and sources of ignition.
Incompatible materials	Strong basic, acidic, or oxidising materials
Hazardous decomposition products	No decomposition if stored and handled as indicated.

Section 11 Toxicological Information

Acute Effects:

Oral	GHS: Not classified
Dermal	GHS: Not classified
Inhalation	GHS: Not classified
Eye	GHS: Category 2A
Skin	GHS: Category 1A

Chronic Effects:

Carcinogenicity	GHS: Not classified
Reproductive Toxicity	GHS: Not classified
Germ Cell Mutagenicity	GHS: Not classified
Aspiration	GHS: Category 2
STOT/SE	GHS: Category 3 - Respiratory tract
STOT/RE	GHS: Category 2

Section 12. Ecotoxicological Information

Ecological effects information	Aquatic acute toxicity: Formulated product: Based on available data of components. GHS: Aquatic Acute Cat. 2. GHS: Aquatic Chronic Cat. 2 Birds:
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	Picloram EC₅₀ (96 h) for <i>Pseudokirchneriella subcapitata</i> 60.2 mg/l; (120 h) for <i>Anabaena flos-aquae</i> 38.2 mg/l. No data available for the formulated product No data available for the formulated product Earthworms: Picloram: LC₅₀ (14 d) for <i>Eisenia fetida</i> >4475 mg/kg soil. No data available for the formulated product Bees: LD₅₀ µg/bee Picloram: >74 (oral), >100 (contact) No data available for the formulated product
Persistence and degradability	Information based on Picloram active: In mammals, following oral administration, picloram is rapidly excreted in an unchanged form. On plant surfaces, photodecomposition occurs, possibly with cleavage of the pyridine ring. For reviews of picloram in the environment, see M. Mayes & G. R. Oliver, An Aquatic Hazard Assessment: Picloram, Aquatic Toxicology and Hazard Assessment: Eight Symposium, ASTM STP 891, in R. C. Bahner & D. J. Hasen, eds., American Society for Testing and Materials, Philadelphia, 1985, pp. 253–269, and Picloram: the Effects of its Use as a Herbicide on Environmental Quality, National Research Council of Canada, Ottawa, Canada, K1A 0R6, Publication No. NRCC 13684 of the Environmental Secretariat, 1974, 128 pp. Quickly degraded by light, in clear water or on plant surfaces. Degraded moderately slowly to slowly by soil micro-organisms, typical field DT₅₀ 30–90 d. Rate of degradation in soil strongly proportional to application rate. Aqueous photodegradation DT₅₀ <3 d.
Bioaccumulation	Bio-concentration potential is low (BCF<100 or log Pow <3)
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) at levels of 0.1% or higher.
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:

Contaminated packaging should be emptied as far as possible. Triple or pressure rinse containers before disposal. If recycling, close container and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture 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.

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
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Rail/road (RID/ADR):

Proper shipping name	-
UN number	Not regulated for transport
Class	-
Packing group	-
Environm. Haz. Mark	-

Sea (IMDG code):

Proper shipping name	-
UN number	Not regulated for transport
Class	-
Packing group	-
Marine pollutant	-

Air (ICAO/IATA):

Proper shipping name	-
UN number	Not regulated for transport
Class	-
Packing group	-
Environm. Haz. Mark	-

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.

Transport in bulk according to Annex II of MARPOL and the IBC Code: Not available.

Chemical Safety Assessment

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

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

H302: Harmful if swallowed.
H305: May be harmful if swallowed and enters airways.
H314: Causes severe skin burns and eye damage.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H373: May cause damage to organs.
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.

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.

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Review Date:

05 February 2031