



## SAFETY DATA SHEET

### RADIATE

Reg. No./Nr. L 9569, Act/Wet No./Nr. 36 Of/Van 1947  
N-AR 1540

#### 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**  
Address: PO Box 1224  
Isando, 1600  
South Africa  
TEL: 071 546 5077  
[www.carabiner.co.za](http://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: 18 April 2023

#### 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 irrit. Cat. 1A  
Eye dam. Cat. 2A  
STOT-SE Cat. 3 respiratory tract irritation  
STOT-RE Cat. 2  
Aspiration Hazard Cat. 2  
Aquatic Acute: Cat. 2.  
Aquatic Chronic: Cat 2.

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)**

- 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 instruction.

**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 local / regional / national / international regulations.

Supplemental Hazard Statements: none

**2.3 Other**

**Other hazards**

No other hazards known

**Section 3. Composition / Information on Hazardous Ingredients**

Soluble Concentrate

Picloram 240g/L

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

<b>Ingredients</b>	<b>Concentration of hazardous ingredient in composition</b>	<b>CAS NUMBER.</b>	<b>Globally Harmonised System, EU (GHS) and according to regulation EC No 1272/2008 [CLP]</b>
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
Other ingredients	To balance	-	Not classified

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

**Section 4. First Aid Measures**

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. Call a doctor for treatment advice. Obtain medical attention immediately if irritation persists. 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 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 assistance if irritation occurs.
If Swallowed	Never give anything by mouth to an unconscious person or to a person having convulsions. Do not induce vomiting. For advice, contact the National Poisons Centre. Seek medical assistance immediately. The decision of whether to induce vomiting or not must be made by an attending physician.
If Inhaled	Remove patient to fresh air. Loosen clothing around neck. Lie down and keep warm and rested. If breathing is shallow or has stopped ensure airway is clear and apply resuscitation. Seek medical assistance immediately.

**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**

<b>Hazards from products</b>	Fire may produce irritating or poisonous vapours, mists, or other products of combustion. Full protective clothing and self-contained breathing apparatus.
<b>Suitable Extinguishing media</b>	<p><b>Small fires:</b> Carbon dioxide, dry powder, halon, or alcohol resistant foam.</p> <p><b>Large fires:</b> 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.</p>

<p><b>Recommended protective clothing &amp; Precautions for firefighters</b></p>	<p>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.</p> <p>Eliminate all ignition sources in the immediate area.</p> <p><b>Additional provisions:</b> 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.</p> <p><b>Personal protective equipment:</b> Full protective clothing and self-contained breathing apparatus and turnout gear. For personal protection see Section 8.</p>
--	---

**Section 6. Accidental Release Measures**

**Personal precautions:**

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 REUSE THE CONTAINER FOR ANY OTHER PURPOSE. Do not transport if this container is damaged or leaking.

### 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:

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

### Occupational exposure limits:

Component	Value type (Form of exposure)	Control parameters / permissible concentration	Basis
Picloram	TWA	10 mg/m <sup>3</sup> (10 ppm)	US OSHA
Potassium hydroxide	Route of exposure: Inhalation	1 mg/m <sup>3</sup>	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

<b>Eyes</b>	The use of safety goggles is recommended.
<b>Hands</b>	Protective (impermeable) gloves, Waterproof gloves. Wash the outside of the gloves before removing them.
<b>Skin</b>	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.
<b>Respiratory</b>	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.
<b>General</b>	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

<b>Appearance</b>	Liquid
<b>Colour</b>	Brown
<b>Odour</b>	Characteristic
<b>Odour Threshold</b>	No data available
<b>pH</b>	7 – 8.5
<b>Boiling/Melting Point</b>	No data available
<b>Freezing Point</b>	No data available
<b>Flash Point</b>	No data. Expected to be >93°C
<b>Flammability</b>	Not flammable
<b>Upper and Lower Explosive Limits</b>	No data available
<b>Vapour Pressure</b>	No data available
<b>Vapour Density</b>	No data available

<b>Density</b>	Approximately 1.16
<b>Water Solubility</b>	Soluble in water
<b>Partition Coefficient:</b>	No data available
<b>Ignition Temperature</b>	No data available
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	No data available
<b>Particle Characteristics</b>	No data available
<b>Surface tension</b>	No data available

### Section 10. Stability and Reactivity

<b>Stability of Substance</b>	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
<b>Possibility of hazardous reactions</b>	None known
<b>Conditions to Avoid</b>	Protect from extreme temperatures, direct sunlight, open flames, and sources of ignition.
<b>Incompatible Materials</b>	Strong basic, acidic, or oxidising materials
<b>Hazardous Decomposition Products</b>	No decomposition if stored and handled as indicated.

### Section 11 Toxicological Information

#### Acute Effects:

<b>Oral</b>	GHS: Not classified
<b>Dermal</b>	GHS: Not classified
<b>Inhalation</b>	GHS: Not classified
<b>Eye</b>	GHS: Eye dam. Cat. 2A
<b>Skin</b>	GHS: Skin irrit. Cat. 1A

#### Chronic Effects:

<b>Carcinogenicity</b>	GHS: Not classifiable as to its carcinogenicity to humans
<b>Reproductive Toxicity</b>	GHS: Not classified
<b>Germ Cell Mutagenicity</b>	GHS: Not classified
<b>Aspiration</b>	GHS: Aspiration Hazard Cat. 2
<b>STOT/SE</b>	GHS: STOT-SE Cat. 3 - Respiratory tract
<b>STOT/RE</b>	GHS: STOT-RE Cat. 2

### Section 12. Ecotoxicological Information

<b>Ecological effects information</b>	<b>Aquatic acute toxicity:</b>  <b>Formulated product: Based on available data of components.</b> GHS: Aquatic Acute Cat. 2.
---------------------------------------	---



	<p>GHS: Aquatic Chronic Cat. 2</p> <p><b>Birds:</b>  <b>Picloram</b>  EC<sub>50</sub> (96 h) for <i>Pseudokirchneriella subcapitata</i> 60.2 mg/l; (120 h) for <i>Anabaena flos-aquae</i> 38.2 mg/l.</p> <p>No data available for the formulated product  No data available for the formulated product</p> <p><b>Earthworms:</b>  <b>Picloram:</b>  LC<sub>50</sub> (14 d) for <i>Eisenia fetida</i> &gt;4475 mg/kg soil.</p> <p><b>No data available for the formulated product</b></p> <p><b>Bees: LD<sub>50</sub> µg/bee</b>  <b>Picloram:</b>  &gt;74 (oral), &gt;100 (contact)</p> <p><b>No data available for the formulated product</b></p>
<b>Persistence and degradability</b>	<p><b>Information based on Picloram active:</b>  In mammals, following oral administration, picloram is rapidly excreted in an unchanged form.</p> <p>On plant surfaces, photodecomposition occurs, possibly with cleavage of the pyridine ring. For reviews of picloram in the environment, see M. Mayes &amp; G. R. Oliver, <i>An Aquatic Hazard Assessment: Picloram</i>, <i>Aquatic Toxicology and Hazard Assessment: Eight Symposium</i>, ASTM STP 891, in R. C. Bahner &amp; D. J. Hasen, eds., American Society for Testing and Materials, Philadelphia, 1985, pp. 253–269, and <i>Picloram: the Effects of its Use as a Herbicide on Environmental Quality</i>, National Research Council of Canada, Ottawa, Canada, K1A 0R6, Publication No. NRCC 13684 of the Environmental Secretariat, 1974, 128 pp.</p> <p>Quickly degraded by light, in clear water or on plant surfaces. Degraded moderately slowly to slowly by soil micro-organisms, typical field DT<sub>50</sub> 30–90 d. Rate of degradation in soil strongly proportional to application rate. Aqueous photodegradation DT<sub>50</sub> &lt;3 d.</p>
<b>Bioaccumulation</b>	Bio-concentration potential is low (BCF<100 or log Pow <3)
<b>Mobility in Soil</b>	No data available.
<b>Other adverse effects</b>	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.
<b>Precautions:</b>	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

### **Rail/road (RID/ADR):**

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

### **Sea (IMDG code):**

<b>Proper shipping name</b>	-
<b>UN number</b>	Not regulated for transport
<b>Class</b>	-
<b>Packing group</b>	-
<b>Marine pollutant</b>	-

**Air (ICAO/IATA):**

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

**Section 15 Regulatory Information**

**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**

**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.

Issue Date: 18 April 2023 Review Date: 18 April 2028