

RATAGON LIQUID CONCENTRATE

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: RATAGON LIQUID CONCENTRATE
Other identifier: Brodifacoum 2.5 g/l
Recommended use: Raticide
Restrictions on use: Agriculture, home and garden

Supplier: Villa Crop Protection (Pty) Ltd.
 PO Box 10413
 Aston Manor, 1630, South Africa
Telephone: (011) 396 2233
Fax: (011) 396 4666
Website: www.villacrop.co.za

Emergency telephone numbers:
24 Hr Transport / Spill emergency no:
 (Hazcall24) +27 86 044 4411
 (Client: Villa Crop Protection)
 Griffon Poison Information Centre +27 82 446 8946
 (Client: Villa Crop Protection)
Poisoning Emergency telephone numbers:
 Griffon Poison Information Centre +27 82 446 8946
 Poisons Information Centre +27 861 555 777

2. HAZARDS IDENTIFICATION

UN GHS, Regulation EC 1272/2008 [EU-GHS/CLP] EU & SANS 10234:2008		
Hazard classes	Hazard categories	H-statements
Health		
Oral	Acute Tox. 3	H301
Dermal	Acute Tox. 4	H312
Inhalation	Acute Tox. 3	H331
Reproductive toxicity	Repr. 1A	H360D
Environment		
Aquatic acute	Aquatic Acute 2	H401
Aquatic chronic	Aquatic Chronic 2	H411

The most important adverse effects:

Physiochemical effects:

None known.

Human health effects:

Toxic if inhaled.
 Toxic if swallowed.
 May damage the unborn child.

Label elements:



Signal word: Danger

Hazard statements:

H301: Toxic if swallowed.
 H312: Harmful in contact with skin.
 H331: Toxic if inhaled.
 H360D: May damage the unborn child.
 H401: Toxic to aquatic life.
 H411: Toxic to aquatic life with long lasting effects.

Precautionary statements:

P202: Do not handle until all safety precautions have been read and understood.
 P261: Avoid breathing mists, vapours or spray.
 P264: Wash skin and eyes thoroughly after handling.
 P270: Do not eat, drink or smoke when using this product.
 P271: Use only outdoors or in a well-ventilated area.
 P273: Avoid release to the environment.
 P280: Wear impervious rubber gloves and chemical safety goggles.
 P301+P310: IF SWALLOWED: Immediately call a POISON CENTER.
 P304/340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P308/313: If exposed or concerned: Get medical attention.
 P330: Rinse mouth.
 P362/364: Take off contaminated clothing and wash it before reuse.
 P391: Collect spillage.
 P405: Store locked up.
 P501: Dispose of contents/container in accordance with local regulations.

Special labelling of certain mixtures:

None known.

Other hazards:

None known.

Toxicity:

Classification according to GHS: Category 3
 Classification according to WHO: Category Ib
 Classification according to GPIC: Category Ia

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance/Mixture: Mixture

Composition:

Chemical Name	CAS	Conc. (m/m %)	Classification EC 1272/2008
Brodifacoum	56073-10-0	0.25%	Acute Tox. 1 (H300)
			Acute Tox. 1 (H310)
			Acute Tox. 1 (H330)
			Repr. 1A (H360D)
			STOT RE 1 (Blood, H372)
			Aquatic Acute 1 (H400)

RATAGON LIQUID CONCENTRATE

SAFETY DATA SHEET

			Aquatic Chronic 1 (H410)
Denatonium benzoate	3734-33-6	< 1%	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Acute Tox. 2 (H330)

Advice to veterinarian:

Anticoagulant Brodifacoum: For animals ingesting bait, and/or showing poisoning signs (bleeding or elevated prothrombin times), give Vitamin K1 at doses of 205 mg/kg. If needed, check prothrombin times every 3 days until values return to normal (up to 30 days). In severe cases, blood transfusions may be needed.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Use carbon dioxide or dry chemical for small fires and water fog or foam for large fires.

Unsuitable Extinguishing Media: High volume water jet. Use a water jet only to cool heated containers.

Specific hazards: Hazards or hazard products arising from combustion.

Special Fire Fighting Procedures: Remove spectators from surrounding area. Isolate the fire area and evacuate all personnel downwind of the fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Keep upwind. Avoid inhaling hazardous vapours and fumes from burning materials. Remove container from fire area if possible and without risk. Do not use high volume water jet, due to contamination risk. Do not scatter the burning material. Water can be used to cool unaffected containers but must be contained for later disposal. Contain fire control agents for later disposal. Avoid pollution of waterways by run-off from the site.

Personal protective equipment: Wear NIOSH/MSHA approved self-contained breathing apparatus and full protective gear.

4. FIRST AID MEASURES

Remove the victim from the area of exposure. Wash off remaining material with plenty of water. In the event of any complaints or symptoms, avoid further exposure. **Immediately consult a doctor.**

Inhalation: Remove person from contaminated area to fresh air and assist breathing as needed. **Seek medical attention immediately.**

Skin: Remove contaminated clothing and shoes. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Obtain medical attention if irritation persists / if feeling unwell.

Eyes: Flush eyes with clean water. Lift eyelids to facilitate irrigation. If present, remove contact and continue rinsing. Seek medical attention if irritation occurs.

Ingestion: Seek medical attention immediately. Induce vomiting if possible. Repeat until vomit is clear. As an alternative give a slurry of activate charcoal in water to drink, at least 3 tablespoons in a glass of water. Never give an unconscious person water to drink.

Anticipated acute effects:

- Toxic if swallowed.
- H312: Harmful in contact with skin.
- H332: Harmful if inhaled.

Anticipated delayed effects: May damage the unborn child.

Most important symptoms/effects: Lethargy, abdominal pain, bleeding from gums and nose, bleeding under skin, pallor, hemorrhaged into and around elbow and knee joints. Blood in urine and faeces.

Advice to physician: This product contains anticoagulants with an effect similar to warfarin, which acts by interfering with the synthesis of prothrombin. Gastric lavage may be effective when performed within 4 hours of ingestion. Note that the symptoms may only occur 12-18 hours after ingestion. Specific antidote: Child 20 mg per day, Adult 40 mg per day in divided doses, orally or by injection. Monitor prothrombin time and hemoglobin levels. Maintain treatment and keep person under supervision until prothrombin times return to and remain normal. In serious cases, small-scale blood transfusions might be required.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid contact with skin. Do not breathe in spray fumes. Ventilate area of spill or leak, especially in contained areas.

Protective equipment: Refer to Section 8 for personal protective equipment to be worn during containment and clean-up of a spill involving this product.

Emergency procedures: Alert firefighting personnel, evacuate unprotected personnel and animals.

Environmental Precautions: Prevent spilled product from entering sewers, waterways or ground water. This product is classified as harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment. Any spillages or uncontrolled discharges into watercourses should be reported immediately to the police and the Department of Water/Environmental Affairs.

Methods and Materials for Containment: Contain spilled product by diking area with sand or earth.

Methods and Materials for Clean-up: Cover contained spill with an inert absorbent material such as sand, vermiculite, earth or other appropriate material. Vacuum, scoop, or sweep up material and place the material into a

RATAGON LIQUID CONCENTRATE

SAFETY DATA SHEET

clean, dry, sealable container. Label containers with the contents and dispose of according to local regulations. Do not place spilled material back in original container. Do not re-use spilled material. Collect washings and add to the drums already collected. Do not flush spilled material or washings into drains or waterways. To decontaminate the spill area, tools and equipment, wash with water and suitable detergent. See section 13 for disposal considerations.

7. HANDLING AND STORAGE

Handling:

Precautions for safe handling: Toxic if swallowed. Avoid contact with skin and eyes. Ensure adequate ventilation during handling and use. Do not handle broken packages without protective equipment. Immediately clean up spills that occur during handling. Keep containers closed when not in use. In the case of contact with the product refer to First Aid Measures – Section 4.

General occupational hygiene: Practice good hygiene when using this material. Wash hands before eating, drinking, chewing gum, smoking, using the toilet or applying cosmetics. Worker should shower at the end of each workday. Launder all clothing before it is re-used.

Storage:

Conditions for safe storage: Keep under lock and key and out of reach of unauthorised persons, children and animals. Store in its original, labelled container, tightly closed, in an isolated, dry, cool and well-ventilated area. Avoid excess heat. Not to be stored next to foodstuffs, feed and water supplies. Avoid cross contamination with other pesticides and fertilisers.

Incompatible substances and mixtures: Refer to product label.

Packaging material: Fluorinated plastic containers/bottles or bettix bottles.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Permissible concentration: No occupational exposure limits have been determined for the significant ingredients in this product.

Engineering Controls:

It is essential to provide adequate ventilation. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Local Exhaust: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OELs or other specified exposure limits. Local exhaust ventilation is preferred. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

Personal Protective Equipment:

Respiratory Protection: Use a NIOSH approved air-purifying respirator with cartridges/canisters approved for specific use.

Hand Protection: The use of chemically protective impervious gloves is recommended to prevent against skin contact.

Eye Protection: The use of chemical safety goggles is recommended to prevent against eye contact. Contact lenses are not protective eye devices.

Skin and Body Protection: Employee must wear appropriate protective impervious clothing; Rubber boots, hat and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.

Emergency eyewash: 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Blue or red liquid.

Odour: Not perceptible.

pH (1% aqueous dilution): 7 – 9.

Melting point: Not available.

Freezing Point: Not available.

Boiling Point: 190 °C.

Flash Point: > 120 °C.

Flammability: Not available.

Upper/lower explosion limits: Not available.

Vapour Pressure (mm Hg): Not available.

Relative Vapour Density: Not available.

Relative density: 1.05 – 1.15 g/ml @ 20 °C.

Solubility: Soluble in water.

n-octanol/water partition coefficient: Not available.

Auto-ignition temperature: Not available.

Decomposition temperature: Not available.

Viscosity: Not available.

10. STABILITY AND REACTIVITY

Chemical Stability: The product is stable for two years at ambient temperature and pressure, under normal storage and handling conditions. Avoid storage under extreme temperatures and conditions. Store below 50 °C, preferably below 30 °C, and not for prolonged periods in direct sunlight.

Reactivity: None known.

Possibility of Hazardous Reactions: Will not occur.

Conditions to Avoid: Extreme heat or exposure to flames.

Incompatible Materials: Strong oxidizers, strong bases, strong reducing agents.

RATAGON LIQUID CONCENTRATE

SAFETY DATA SHEET

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, other pyrolysis products typical of burning organic material. May emit poisonous fumes.

Persistence and degradability: Degraded in soils (pH 5.5-8) under aerobic and flooded conditions. K_{oc} (ave.) 50 000, range 14 000-106 000; K_d (ave.) 1040, range 625-1320. $DT_{50} > 12$ w. Unlikely to leach; < 2% leached > 2cm in laboratory columns. Hydrolytically stable at pH 5, 7 and 9 (20 °C).

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

Calculated according to GHS (conforms to WHO)

Oral $LD_{50} > 110$ mg/kg

Dermal $LD_{50} > 800$ mg/kg

Inhalation $LC_{50} > 0.8$ mg/l

Skin Irritation/Corrosion: None known.

Eye Damage/Irritation: None known.

Skin Sensitization: None known.

Respiratory Sensitization: None known.

Reproductive cell mutagenicity: None known.

Carcinogenicity: None known.

Reproductive toxicity: May damage the unborn child.

Specific target organ toxicity – single exposure: None known.

Specific target organ toxicity – repeated exposure: None known.

Aspiration hazard: None known.

Chronic Effects None known.

POTENTIAL ADVERSE EFFECTS:

Inhalation: Harmful if inhaled.

Skin contact: Harmful in contact with skin.

Ingestion: Toxic if swallowed.

Bio-accumulative Potential: Not determined.

Mobility in soil: Not determined.

Other adverse effects: Not determined.

13. DISPOSAL CONSIDERATIONS

Waste: Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused or re-processed. Never pour untreated waste or surplus product 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. Comply with local legislation applying to waste disposal. The product may be taken to a registered waste disposal site or incineration plant.

Container: Emptied containers retain product residues. Do not re-use the empty container for any other purpose. Triple rinse empty containers by inverting the empty container over the spray or mixing tank and allow draining for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three times with a volume of water equal to a third of that of the container. Add the rinsings to the contents of the spray tank before destroying the container in the prescribed manner. Destroy the container by perforating and flattening and dispose of through an approved waste dump site, incineration plant or recycling company. Observe all labelled safeguards until container is destroyed.

12. ECOLOGICAL INFORMATION

This product is considered a marine pollutant.

ECOTOXICITY DATA:

Fish:

LC_{50} (96 h)	Rainbow trout	0.04 mg/l
	Bluegill sunfish	0.165 mg/l

Daphnia:

LC_{50} (48 h)		0.45 a.i./l
------------------	--	-------------

Algae:

$E_r C_{50}$ (72 h)	<i>Selenastrum capricornutum</i>	> 0.27 mg/l
---------------------	----------------------------------	-------------

Birds:

Acute oral LD_{50}	Japanese quail	11.6 mg/kg
	Chickens	4.5 mg/kg
	Mallard ducks	0.31 mg/kg

Dietary LC_{50} (40d)	Mallard ducks	2.7 mg/kg
	Laughing gull	0.72 mg/kg

Worms:

LC_{50} (14 d)		> 994 mg/kg dry soil
------------------	--	----------------------

Animals: In mammals, a number of hydroxycoumarins are formed.

ENVIRONMENTAL EFFECTS:

14. TRANSPORT INFORMATION

UN Number:	2902
Road Transport ADR/IRD:	
Class:	6.1
Packaging group:	II
UN Proper Shipping Name:	Pesticides, liquid, toxic, n.o.s. (Brodifacoum 2.5 g/kg)
Maritime Transport IMDG/IMO:	
Class:	6.1
Packaging group:	II
UN Proper Shipping Name:	Pesticides, liquid, toxic, n.o.s. (Brodifacoum 2.5 g/kg)
Marine Pollutant (Y/N):	Yes.
Air Transport IATA/ICAO:	
Class:	6.1
Packaging group:	II

RATAGON LIQUID CONCENTRATE

SAFETY DATA SHEET

UN Proper Shipping Name: Pesticides, liquid, toxic, n.o.s. (Brodifacoum 2.5 g/kg)

Revision no.: (1)
Next revision: October 2026

For detailed information on revisions, contact the Registration holder.

Special/Environmental Precautions: Wedge drums tightly to avoid movement.

Transport in bulk (according to MARPOL 73/78, Annex II and the IBC code): Not available.

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation for the mixture:

OHSA 1993 Regulations for Hazardous Chemical Substances.

Relevant information regarding restrictions: None.

EU regulation: Regulation EC1272/2008 (EU-GHS/CLP)

Other national regulations: None.

Chemical Safety Assessment carried out? No

16. OTHER INFORMATION

Packaging: Packed in 1, 2, 2.5 & 5 litre fluorinated plastic containers/bottles or bettix bottles, labelled according to South African regulations and guidelines.

Additional H statements (formulants):

H300: Fatal if swallowed.

H302: Harmful if swallowed.

H310: Fatal in contact with skin.

H315: Causes skin irritation.

H318: Causes serious eye damage.

H330: Fatal if inhaled.

H372: Causes damage to blood through prolonged or repeated exposure.

H400: Very toxic to aquatic life.

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

Disclaimer: The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage and use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed. All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.

END OF DOCUMENT

Compiled: October 2018
Reviewed: October 2021