

SAFETY DATA SHEET RODEX LIQUID BAIT

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/ UNDERTAKING

1.1 Identification of the product/preparation:

Product Name: RODEX LIQUID BAIT

Product Description: Liquid bait, used diluted for rodent control

Product Type: Rodenticide

Registration Number: L9289

Active Ingredient: Brodifacoum

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

A highly active anticoagulant liquid bait, used diluted with water for the control of the Norway rat, roof rat, and the house mouse.

The product should not be used for any other purpose or in any other manner contrary to the information supplied on the product label.

Restricted Use Agricultural Remedy: This remedy may only be sold to and used by a registered pest control operator.

1.3 Details of the supplier of the Safety Data Sheet:

Innovative Pest Management (Pty) Ltd

Co. Reg. Nr.: 2001/00587/07

18 Aschenberg Street

Chamdor, Krugersdorp

+27 11 769 1300

1.4 Emergency telephone number:

Tygerberg Poison Information Centre

(24 Hour Poisoning Emergency Helpline)

+27(0) 861 555 777

Griffon Poison Information Centre

(24 Hour Poisoning Emergency Helpline)

+27(0)82 446 8946

SECTION 2: HAZARD(S) IDENTIFICATION

2.1 Classification of the substance/mixture:

This product is classified as hazardous according to the criteria in South Africa: GHS classification and labelling of chemicals – SANS10234, and the Regulations for Hazardous Chemical Agents - 2021.

Hazard Class	Category	Hazard Statement Number
STOT RE	1	H372

2.2. Label elements

Pictograms:



Signal Word:
DANGER

Hazard Statements:

Statement Number	Hazard Statement
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H372	Causes damage to organs (bleeding) through prolonged or repeated exposure.
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Precautionary Statements:

General -

Statement Number	Precautionary Statement
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P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.

Prevention-

Statement Number	Precautionary Statement
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P203	Obtain, read and follow all safety instructions before use.
P260	Do not breathe dust/vapours.
P264	Wash hands and face thoroughly after handling.
P270	Do not eat, drink, or smoke when using this product.
P280	Wear protective clothing, gloves, eye, and face protection.

Response-

Statement Number	Precautionary Statement
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P318	IF exposed or concerned, get medical advice.
P319	Get medical help if you feel unwell.

Storage

Statement Number	Precautionary Statement
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P405	Store locked up.
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Disposal-

Statement Number	Precautionary Statement
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P501	Dispose of contents/container to a licensed waste facility and in accordance with national waste management regulations and local requirements.
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2.3 Other Hazards:

Wild mammals and birds may be at greater risk if this product is not used in accordance with the label.

Exposure of non-target animals must be prevented.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Mixture:

IUPAC/Chemical Name-Active ingredient:	4-hydroxy-3-(3-(4'-bromo-4-biphenyl)-1,2,3,4-tetrahydro-1-naphthyl)coumarin
CAS Number:	56073-10-0
Molecular Formula:	C ₃₁ H ₂₃ BrO ₃
Chemical Family:	4-hydroycoumarin class of anticoagulants

Formulation:

Liquid

Hazardous Component	CAS number	Weight - %	GHS Classification
Brodifacoum	56073-10-0	< 0.10%	Acute Toxicity Oral, Category 1. Acute Toxicity Dermal, Category 1. Acute Toxicity Inhalation, Category 1. STOT RE, Category 1. Blood. Reproductive Toxicity, Category 1A. Aquatic Toxicity Acute, Category 1. Aquatic Toxicity Chronic, Category 1. M Factors Acute & Chronic =10.

The other ingredients not included above do not cause or contribute towards the correct GHS classification of RODEX LIQUID BAIT, in terms of the South African Regulations for Hazardous Chemical Agents – 2021; Regulation 14(b), and are therefore not listed.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures:

- General:** Call a physician or poison control centre immediately if ingested. Immediately remove all contaminated clothing and move the affected person out of the contamination area. Keep the person warm, calm, and covered up. First aid personnel should always pay attention to their own safety. Provide this SDS to medical personnel for treatment.
- Eye contact:** Rinse/flush the eyes gently with water from the eye wash fountain for several minutes (at least 15 minutes), while holding the eyelids apart. Ensure complete irrigation of the eye by keeping eyelids apart and away from the eye and moving the eyelids. If present, remove contact lenses if easy to do so. Continue rinsing without rubbing the eyes. Obtain medical attention if irritation occurs and persists.
- Inhalation:** Unlikely to present an inhalation hazard unless excessive dust is present. Move the patient to fresh air. If breathing is difficult have qualified personnel administer oxygen. If breathing has stopped, administer artificial respiration. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the product; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Obtain medical attention if concerned.
- Skin contact:** Immediately wash off thoroughly with plenty of water for 15 to 20 minutes under the safety shower. Obtain medical attention if irritation occurs and persists.
- Ingestion:** Obtain immediate medical attention - call a poison control centre or medical practitioner for treatment advice. Do NOT induce vomiting. Rinse the mouth with water. **Never give anything by mouth to an unconscious or convulsing person.** If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration.

4.2 Most important symptoms and effects, both acute and delayed:

- General :** The active ingredient in the product is an anticoagulant. Ingestion could result in an increased tendency to bleed. In severe cases, extreme

bleeding from internal organs may result in circulatory shock, which could be fatal.

The onset of symptoms could be delayed for up to 4 days after uptake. Brodifacoum should be regarded as teratogenic based on the knowledge about analogous compounds (other antivitamin K anticoagulants in humans).

Note: Prolonged and/or repeated exposure to small amounts of the product could produce cumulative toxicity. Symptoms of toxicity include lethargy, loss of appetite, the reduced clotting ability, and bleeding (e.g. nose, under the skin, and gum bleeding).

- Ingestion:** Nausea and possible vomiting may occur.
- Inhalation:** Unlikely to occur due to the physical properties of the product.
- Skin Contact:** Repeated or prolonged excessive exposure may cause irritation in sensitive individuals.
- Eye contact:** May result in mild eye irritation.

4.2 Indication of any immediate medical attention and special treatment needed

Treatment:
Advice for medical personnel: Brodifacoum is a direct anticoagulant that interferes with the blood clotting mechanism by inhibiting the vitamin K epoxide reductase. Vitamin K1 preparation as antidote.
Place under medical supervision if ingested.

SECTION 5: FIREFIGHTING MEASURES

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| 5.1 | Suitable extinguishing media: | Water spray, foam, carbon dioxide or dry chemical. |
| 5.2 | Unsuitable extinguishing media: | High volume water jet. |
| 5.3 | Special protective equipment and precautionary measure for fire-fighters: | In the event of fire do not breathe fumes or vapours. Wear self-contained breathing apparatus and protective suit. |
| 5.4 | Specific hazard arising from the product: | Fires involving the product may produce irritating or toxic products of combustion including oxides of carbon (CO and CO ₂) and hydrogen bromide. |
| 5.5 | Additional provisions: | Fight fire from a safe distance, with adequate cover. Act in accordance with the site's Internal Emergency Plan.
Contain the spread of the fire-fighting media. Keep container cool by spraying with water. Do not allow run-off from firefighting to enter drains or water courses. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local and national regulations. |

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment, and emergency procedures:** The nature of this product, when contained in bait stations/boxes, makes spillage unlikely. If significant amounts are spilled, avoid contact with product or contaminated surfaces. Contain spills if it can be done without risk and clean-up immediately. Avoid contact with eyes, skin and clothes. Do not touch or walk through spilled material as it could be slippery when spilt. Wear appropriate protective clothing recommended in Section 8 of the SDS including chemical impermeable gloves.
- 6.2 Environmental precautions:** Prevent spillage or further leakage if safe to do so. Prevent contact with soil and entry to sewers, drains and water courses in case of accidental spillage. Do not allow the spilt product to spread to other areas - keep the spilt material contained and isolated. Report spills and releases as required to appropriate authorities if the spilt product has caused environmental pollution (sewers, water ways, soil, or air).
- 6.3 Methods for cleaning up:** **For small spills**, sweep/vacuum up and place into a labelled waste container with a shovel. Close, seal and label the container. Dispose of collected spilt material as hazardous waste. Clean the contaminated surface with water to remove any residues of the spilt product. Keep the wash water out of drains, sewers, and waterways. **For large spills**, do not wash away into sewers. Prevent excessive dust formation by covering with a tarpaulin. Contain and collect spilt product in suitable, labelled containers for proper disposal as hazardous waste. If spill is in water, contain contaminated water for disposal as hazardous waste

SECTION 7: HANDLING AND STORAGE

- 7.1 Precautions for safe handling:** Ensure thorough ventilation of stores and work areas. Prevent contact with eyes, skin, and clothing. Wear protective clothing and equipment during handling as described in Section 8 of the SDS. If clothing gets contaminated with the product, change to clean clothing promptly. Do not take contaminated work clothing home as this could contaminate family members. Do not eat or drink during use. Wash the hands, face, and arms thoroughly after handling with soap. Do not permit smoking in use or storage areas. Locate emergency showers and eye-rinsing facility near the work/handling area. Maintain good normal industrial hygiene and housekeeping practices in areas where the product is used/handled. Do not apply the product in the open – cover bait points or use bait boxes. Do not place bait where food, feed or water could become contaminated. Prevent access to bait by children, birds and non-target animals particularly dogs, cats, pigs and poultry. Search for and remove rodent bodies at frequent intervals during treatment, ideally at each inspection in order to avoid secondary poisoning phenomena. Collect and dispose of the remains of bait and

any remaining rodent bodies after treatment.

7.2 Conditions for safe storage, including any incompatibilities:

The entrance to storage facilities should be granted only to appropriately trained personnel. Always store locked up and keep containers tightly closed when not in use. Check storage containers regularly for leaks.

The formulation is stable if stored well ventilated, out of direct sunlight, cool and free of moisture and high humidity. Keep out of reach of children, uninformed persons, and animals. Protect containers from physical damage. Do not contaminate water, food, or feed, by storage or disposal.

Store in accordance with national and local regulations.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Components with workplace control parameters – national occupational exposure limits:

The product, as supplied, does not contain any ingredient for which an occupational exposure limit has been established by the South African Department of Employment and Labour.

8.2 Appropriate engineering controls:

Ensure good ventilation of the workstation and where the bait dispenser/station is placed.

8.3 Exposure controls:

Respiratory protection:

Respiratory protection is not required under anticipated circumstances of use and exposure.

In industrial operations where manufacturing, commercial blending and packing takes place, and where the risk assessment indicates that there could exposure, an approved respirator (half/full face mask) with a particulate filter and an organic vapour cartridge or supplied air respirator should be used. Respirator selection and use should be based on contaminant type, form, and concentration. Always follow the respirator's manufacturer's regarding wearing and maintenance. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

Skin and hand protection:

Select skin and hand protection based on the task being performed and the risks involved with the task.

Chemical resistant gloves specified as EN ISO 374-1 Type A or Type B, or similar, with at least 30 minutes penetration time, must be worn when opening the container and using the product.

In industrial operations - impervious chemical resistant gloves recommended for hand protection specified as EN ISO 374-1 Type A or Type B, or similar). Consider the glove penetration time with at least 30 minutes - information on glove penetration time is available from the manufacturer of the glove.

The gloves should be replaced immediately in case of damage or signs of wear. Impervious coveralls, apron, shoes, and socks as required to prevent skin contact and contamination of personal clothing. Overalls must be buttoned to the neck and sleeves worn over the gloves.

Eye/face protection:

Eye protection is not normally necessary when this product is being used. In industrial settings where manufacturing, commercial blending, and packaging takes place, safety eyewear compliant with an approved standard should be used. Safety glasses with side-shields is recommended.

General safety and hygiene measures: The measures appropriate for a particular work site depend on how the product is used and on the extent of exposure. Ensure that all control systems are properly designed and maintained.
Handle the product in accordance with good industrial hygiene and safety practice.
An eye wash fountain and safety shower should be available and easily accessible in industrial settings.
Keep the product away from food, drink, and animal feeding stuffs.
Wash the hands and/or face before breaks, eating, smoking, or using the lavatory and at the end of the shift/working period.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Colour:	Blue
Odour:	Mild chemical
Storage stability:	Stable
Shelf life:	24 months
pH:	No data available
Flammability:	Not flammable
Solubility:	Miscible with water
Flash point (°C):	Not determined for the product
Vapour pressure (Pa):	No data available
Boiling point (°C):	No data available
Dynamic viscosity:	No data available
Explosion hazard:	There is no evidence of explosive properties

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:	The product is not reactive under normal ambient and anticipated storage and handling conditions of temperature and pressure.
10.2 Chemical stability:	Hazardous polymerization will not occur. Stable under normal ambient conditions of use, storage, and transport.
10.3 Possibility of hazardous reactions:	None known under conditions of normal use.
10.4 Conditions to avoid:	Direct sunlight and high temperatures, strong oxidizing agent.
10.5 Incompatible materials:	Substances to avoid: strong bases, strong acids, strong oxidizing agents.
10.6 Hazardous decomposition products:	No decomposition products expected under normal conditions of use. Combustion in fires will produce irritating or toxic combustion products including oxides of carbon (CO and CO ₂) and hydrogen bromide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1	Information on likely routes of exposure: Occupational exposure to the product may occur through dermal contact with the product at workplaces where it is produced or used. Eye contact is also possible.
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11.2 Information on toxicological effects:

Acute Toxicity: No experimental toxicological data are available for the product. Assessment of toxicological effects are based on the ingredients. The product is not classified for Acute Toxicity Oral, Dermal, or Inhalation.

Assessment of acute toxicity:

Product/ingredient Name	Dose Acute -	Species	Test Result
Brodifacoum	0.418 mg/kg	Rat	LD ₅₀ Oral
Brodifacoum	7.48 mg/kg	Rat	LD ₅₀ Dermal
Brodifacoum	3.05 µg/L/4 h, head-only	Rat	LC ₅₀ Inhalation (Dust/Mist)

Corrosion/Irritation –Dermal/Skin:

Assessment of corrosion/irritation effects on skin:
Based on available data, the classification criteria are not met.

Damage/Irritation – Eye:

Assessment of corrosion/irritation effects on eye:
Based on available data, the classification criteria are not met.

Respiratory/Skin Sensitization:

Assessment of sensitization:
Based on available data, the classification criteria are not met.

Germ cell mutagenicity:

Assessment of mutagenicity:
Based on available data, the classification criteria are not met.

Carcinogenicity:

Assessment of carcinogenicity:
Based on available data, the classification criteria are not met.

Reproductive toxicity:

Assessment of reproduction toxicity:
Based on available data, the classification criteria are not met.
Note: Brodifacoum ingestion in pregnancy may result in significant problems to the fetus and newborn. Problems may include, central nervous system defects, spontaneous abortion, still birth, prematurity, and hemorrhage.

Developmental toxicity:

Assessment of teratogenicity:
Based on available data, the classification criteria are not met.
Note: Brodifacoum causes toxicity for embryo development.

Specific target organ toxicity (single exposure):

Assessment of STOT (single):
Based on available data, the classification criteria are not met.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure):

Assessment of repeated dose toxicity:
Based on available data, the classification criteria are met.
Brodifacoum: In repeated dose studies, no other toxic effect than reduced coagulation and haemorrhages were observed.

Aspiration hazard:
Assessment of repeated dose toxicity:
Based on available data, the classification criteria are not met.

Symptoms related to the physical, chemical, and toxicological characteristics:
See Section 4 of the SDS.

Delayed and immediate effects as well as chronic effects from short and long-term exposure:
No additional information available for the product.

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity:

The product is not harmful to aquatic organisms.

No eco-toxicological data are available for the formulated product. This ecological assessment is based on data available for the active ingredient Brodifacoum.

Brodifacoum:

Species and genus	Exposure (hours/days)	Result in fresh water	Data source
Fish - (<i>Oncorhynchus mykiss</i>)	96h	Acute LC ₅₀ : 0.04 mg/L	*EU Brodifacoum Assessment Report
Invertebrates - (<i>Daphnia magna</i>)	48h	Acute EC ₅₀ : 0.25 mg/L	*EU Brodifacoum Assessment Report
Algae – (<i>Selenastrum capricornutum</i>)	72h	Acute ErC ₅₀ : 0.06 mg/L Growth rate	*EU Brodifacoum Assessment Report

*Data source: EU CLP - Standing Committee on Biocidal Products. Brodifacoum Assessment Report.

12.2 Other Environmental and Adverse Effects:

Environmental Effect	Environmental effect applicable to the ingredient	Description
Persistence and Degradability	Brodifacoum	Brodifacoum is not readily or inherently biodegradable. In an aerobic soil, the half-life of brodifacoum is 157 days, suggesting that biodegradation may be an important but slow environmental fate process in soil. Brodifacoum is stable to hydrolysis at pH 5, 7, and 9, and is therefore persistent in soil.
Bioaccumulative Potential	Brodifacoum	An estimated BCF of 570 suggests the potential for bioconcentration in aquatic organisms is high.
Mobility in Soil	Brodifacoum	The DT ₅₀ value of 157 days and the K _{oc} of indicate that brodifacoum would be persistent and immobile in soil. The potential for contamination of surface and ground water is therefore low. Volatilization from moist soil surfaces is not expected to be an important fate process. If released into water, brodifacoum is expected to adsorb to suspended solids and sediment.
Other Adverse Effects	Brodifacoum	Is highly toxic to birds. Rodents poisoned with brodifacoum baits can kill avian and mammalian secondary consumers.

Data sources:

1. PubChem.
2. EPA - Reregistration Eligibility Decision (RED). Rodenticide Cluster. July 1998.
3. EU CLP - Standing Committee on Biocidal Products. Brodifacoum Assessment Report.

SECTION 13: DISPOSAL CONSIDERATIONS

13 .1 Waste handling and disposal

Avoid and minimize the generation of waste.
Dispose product related waste in accordance with all local regulations and the national waste management regulations; and prevent the contamination of water, food, or feed by storage or disposal of the waste. Do not use empty containers for any other purpose. The product or empty containers must not be disposed of as part of general waste. Special help is available for the disposal of agricultural chemicals. The product label will supply general advice regarding disposal of small quantities.

13. 2 General container handling

Non-refillable container - do not reuse or refill the container. Ensure that all the bait is consumed before disposing of the empty container.

13.3 Additional special precautions

The product and its container must always be disposed of in a safe manner.
Note: Dispose of dead rodents by picking it up with rubber or plastic gloves, placing the carcasses in a plastic bag

containing sufficient general-purpose household disinfectant to thoroughly wet the carcasses.

SECTION 14: TRANSPORT INFORMATION

The product is not classified for the transport of Dangerous Goods purposes.

SECTION 15: REGULATORY INFORMATION

15.1 South African Legislation:

Relevant regulatory information regarding authorization, Safety Data Sheets, Occupational Exposure Limits, Hazardous Substances, Dangerous Goods Transport and Waste:

Occupational Health and Safety Act 1993. Regulations for Hazardous Chemical Agents - 2021. Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act 36 of 1947). Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947) Regulations Relating to Agricultural Remedy. 25 August 2023.

Hazardous Substances Act, 1973 (Act No.15 of 1973).

SANS11014:2010. Safety Data Sheet for Chemical Products – Content and Order of Sections.

SANS10206: 2020. The Handling, Storage and Disposal of Pesticides.

National Road Traffic Act, 1996 (Act No. 93 of 1996). SANS 10228:2021 - The identification and classification of dangerous goods for transport by road and rail modes.

National Environmental Management: Waste Act 59 of 2008.

SECTION 16: OTHER INFORMATION

16.1 Text of the hazard statements mentioned in Section 3:

Hazard Class & Category	Hazard Statement Number	Hazard Statement
Acute Toxicity Oral, Category 1.	H300	Fatal if swallowed.
Acute Toxicity Dermal, Category 1.	H310	Fatal in contact with skin.
Acute Toxicity inhalation, Category 1.	H330	Fatal if inhaled.
STOT RE, Category 1.	H372	Causes damage to organs through prolonged or repeated exposure.
Reproductive Toxicity, Category 1A.	H360D	May damage the unborn child.
Aquatic Toxicity Acute, Category 1.	H400	Very toxic to aquatic life.
Aquatic Toxicity Chronic, Category 1.	H410	Very toxic to aquatic life with long-lasting effects.

16.2 Key to Abbreviations:

AND	European Provisions concerning the International Carriage of Dangerous Goods by inland Waterways
ADR	The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
COD	Chemical Oxygen Demand
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IMDG	International Maritime Dangerous Goods

Log _{POW}	Logarithm of the octanol/water partition coefficient
LD ₅₀	Lethal Dose 50
LC ₅₀	Lethal Concentration 50
RID	The Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
UN	United Nations

16.3

Disclaimer:

The information on this Safety Data 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 SAFETY DATA SHEET