

**1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY**

- Identification of the preparation Brodifacoum 0,25%
- Use of the preparation: The preparation is used as raw material in the formulation of rodenticide baits.
- Company identification: ACTIVA S.r.l.  
Viale Lombardia, 22  
20131 Milano  
Phone 02/70637301  
Fax 02/70637228
- Emergency telephone: 02/70637301

**2. COMPOSITION**

# The preparation contains:

- Polyethylene glycols (not dangerous): as diluents
- Brodifacoum (active ingredient): 0,25%
- Chemical name: 3-[3-(4'-bromobiphenyl-4-yl)-1,2,3,4-tetrahydro-1-naphthyl]-4-hydroxycoumarin -  
CAS No. 56073-10-0 EEC No. 259-980-5  
Symbols: T+; N R phrases: 27/28-48/24/25-50/53

**3. HAZARD IDENTIFICATION**

In accordance with the EC classification principles, the preparation is classified as harmful if swallowed or in contact with skin.

- Health risks: The preparation is an anticoagulant and the risk is a possible internal haemorrhage.  
- Harmful if in contact with skin; it can be absorbed and could cause the above mentioned damage.  
- Harmful if swallowed; serious risk of internal haemorrhage.
- Environmental risks: Soil and water can be polluted.

**4. FIRST-AID MEASURES**

**General indications:** Seek medical advice.

- Skin contact: Nil by mouth to unconscious people.  
Wash skin immediately with plenty of soap and water.
- Eye contact: Rinse eyes immediately with plenty of water for at least 15-20 minutes lifting eye lids. If eyes are still red and there is still irritation, consult an ophthalmologist.
- Ingestion: Rinse mouth with water.
- Inhalation: Take person to fresh air.

Advice for the doctor: the preparation is an anticoagulant and its effects can persist for a long time.

It is advisable:

- To check the prothrombinic activity many times, also after a few days, particularly if the quantity swallowed is high. The antidote is vitamin K: the medicine has to be given intramuscularly, only if alterations in the prothrombinic activity appear and not as a preventative.
- In animals and particularly for pets, vitamin K can be given even in absence of alterations of the coagulation, because of the severity of the haemorrhaging which can appear in case of ingestion.

#### **5. FIRE-FIGHTING MEASURES**

- Suitable extinguishing media: Halogenated gas, foam and chemical powders, CO<sub>2</sub>
- Extinguishing media which must NOT be used for safety reasons: Water.
- Special exposure hazards arising from the substance or the preparation itself, combustion products and/or resulting gases: Toxic gas.
- Special protective fire-fighting equipment: Wear breathing apparatus and protective clothing.

#### **6. ACCIDENTAL-RELEASE MEASURES**

- Personal precautions: Wear suitable gloves, glasses and protective clothing.
- Environmental precautions: Do not permit the product to reach drains, water drains or penetrate the soil. If water or drains are polluted, inform the competent authorities immediately.
- Methods for cleaning up: Clean up all traces with absorbent material, do not wash with water.

#### **7. HANDLING AND STORAGE**

- Handling: Use all the individual precautions provided to avoid contact.
- Storage: Keep container tightly closed in cool and dry places, away from unauthorised people and food.
- Specific uses: ---

#### **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

Limit values for the exposure are not available. It is advisable to follow these precautions:

- Respiratory protection: Necessary in use of aerosol
- Hand protection: Gloves for chemical products. Periodic substitution.
- Eye protection : Goggles for chemical products.
- Skin protection: Protective clothes. Periodic substitution.

All the usual precautions for handling chemical products must be followed.

**9. PHYSICAL AND CHEMICAL PROPERTIES****General Information**

Physical state: Liquid  
Colour: Indicated on the label (can be red, blue or without any added colour)  
Odour: Not perceptible

**Important health, safety and the environmental information**

pH: 7-9  
Boiling point: 190° C  
Flash point: > 120°C  
Flammability: ---  
Explosive properties: ---  
Oxidising properties: ---  
Vapour pressure: ---  
Relative density: 1050-1150 g/l  
Solubility:  
- water solubility: soluble  
- fat solubility: soluble in various organic solvents  
Partition coefficient: n-octanol/water: ---  
Viscosity: ---  
Vapour density: ---  
Evaporation rate: ---

**10. STABILITY AND REACTIVITY**

- Conditions to avoid: Exposure to high temperatures
- Materials to avoid: Strong oxidant agents
- Hazardous decomposition products: Thermal decomposition can produce toxic fumes (carbon oxide)

**11. TOXICOLOGICAL INFORMATION**

- Oral toxicity: LD<sub>50</sub> is acute via oral for rats with active ingredient : 0,3mg/kg (WHO)  
LD<sub>50</sub> experimental for the present preparation : 228mg/kg (BIOLAB)
- Acute dermal toxicity: LD<sub>50</sub> higher than 2.000 mg/kg ( BIOLAB )
- Inhalation toxicity: Not foreseen
- Harmful effects: The preparation contains a substance with anticoagulant effects and may cause internal haemorrhaging, even delayed.

**12. ECOLOGICAL INFORMATION**

Toxic effects on fish, plankton and other organisms. Limited risk for the waters.

**Ecotoxicity**

- Fish\*: At the dosage of 10 mg/l, during the 96 hours of observation, no symptom of toxicity has appeared and no death has occurred (Report no. 95/11604 Biolab)

- Algae\*: At the dosage of 10 mg/l there is no difference in the growing of the algae (Report no. 95/11603 Biolab).
- Daphnia\*:  $Cl_{50}$  is > 10 mg/l (Report no. 95/11602 Biolab) *\*reports refer to "Concentrate 0,25%"*

▪ **Mobility**

Absorption coefficient of the active ingredient is  $K_{oc} = 912$  ; classification: no leaching (Technical Report n. 1 14/07/1997 Chemservice)

▪ **Persistence and degradability**

The active ingredient is scarcely degradable

▪ **Bioaccumulative potential**

The active ingredient has Log Pow: 10000 (Study CH-14/96-B Chemservice)

▪ **Other adverse effects**

Not available

**13. DISPOSAL CONSIDERATIONS**

- Disposal: Arrange disposal by incineration or with other approved suitable treatment.
- Container disposal: Elimination or recycling in accordance with the local Authority Regulations. Follow in any case the local Authority Regulations.

**14. TRANSPORT INFORMATION**

# The transport of this product is subject to the regulations for "dangerous products".

**Definition:** coumarin derivative pesticide, liquid, toxic (Brodifacoum 0,25%).

- Rail and road transport Class 6.1 Hazard identification n. 60
- RID/ADR UN n. 3026 Label 6.1  
Group III
- Sea shipment IMDG Class 6.1  
UN n. 3026 Label 6.1  
EmS: 6.1 - 02  
Marine pollutant: No
- Air shipment IATA Class 6.1  
UN n. 3026 Label 6.1  
Pack. ins. 611  
Group III

**15. REGULATORY INFORMATION**

EC labelling and classification

- Danger symbol: Xn Harmful
- R Phrases: R 21/22 Harmful in contact with skin and if swallowed  
R 48/21/22 Harmful: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed.  
R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

- |             |         |  |
|-------------|---------|--|
| ▪ S Phrases | S 23    | Do not breathe spray.  |
|             | S 36/37 | Wear suitable protective clothing and gloves.  |
|             | S 45    | In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible) |
|             | S 60    | This material and its container must be disposed of as hazardous waste.                                    |
|             | S 61    | Avoid release to the environment. Refer to special instructions/Safety data sheets.                        |

**16. OTHER INFORMATION**

# Complete text of the R Phrases indicated in Section 2:

- R 27/28: Very toxic in contact with skin and if swallowed.
- R 48/24/25: Toxic: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed.
- R 50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

# N.B. On request, the preparation can contain 0,5% Bitrex® (denatonium benzoate) as a “repulsive agent” in order to prevent accidental ingestion of the finished baits (Directive 98/8/CE art. 20 2-b).

# Bibliography: - *The Pesticide Manual* 12<sup>th</sup> Ed.  
 - *ANTICOAGULANTS RODENTICIDE* Envir. Health Criteria 175 W.H.O. Geneva 1995  
 - Reports from “BiolabSpA”- Vimodrone (MILANO)  
 - “The WHO recommended classification of pesticide...” WHO/PCS/96.3  
 - ChemService Studies, Novate Milanese, Milano

# Updating: This sheet was updated according to the regulations in force (see date on top right). Changes and/or additions to the previous sheet are indicated by the symbol #.

Sheet and safety data in accordance with Directive 2001/58/CE (7<sup>th</sup> September 2002 Decree).

The information in this Material Safety Data Sheet is based on our present knowledge and on the EEC regulations. The product must not be used for purposes different from those specified. It is the user's responsibility to take all necessary measures to follow the local and national regulations.

*The present sheet deletes and substitutes all previous editions*