

KLERAT

Version 5

Revision Date 21.04.2006

Print Date 21.04.2006

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT INFORMATION

Product name : KLERAT
Design Code : A12722A
Use : rodenticide
Company : Syngenta Crop Protection AG
 Postfach
 CH-4002 Basel
 Switzerland
Telephone : +41 61 323 11 11
Telefax : +41 61 323 12 12
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Toxic



Dangerous for the environment

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

Chemical Name	CAS-No.	EC-No.	Symbol(s)	R-phrase(s)	Concentration
brodifacoum	56073-10-0	259-980-5	T+, N	R27/28 R48/24/25 R50/53	2.5 % W/W
1,2-propanediol	57-55-6	200-338-0			20 - 30 % W/W

For the full text of the R phrases mentioned in this Section, see Section 16.

3. Hazards identification

Toxic in contact with skin and if swallowed.

Harmful: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. FIRST AID MEASURES

General advice : Have the product container, label or Material Safety Data Sheet with you when calling the Syngenta emergency number, a poison control center or physician, or going for treatment.

Inhalation : Remove to fresh air.
 Keep patient warm and at rest.
 If breathing is irregular or stopped, administer artificial respiration.
 Call a physician or Poison Control Centre immediately.

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- Skin contact** : Take off all contaminated clothing immediately.
Wash off immediately with plenty of water.
If skin irritation persists, call a physician.
Wash contaminated clothing before re-use.
- Eye contact** : Rinse immediately with plenty of water, also under the eyelids,
for at least 15 minutes.
Remove contact lenses.
Immediate medical attention is required.
- Ingestion** : Take victim immediately to hospital.
Do NOT induce vomiting.
- Symptoms** : Symptoms of poisoning are typical of anticoagulants. In severe
cases there may be bruising, haematomas of the joints, blood
in the faeces and urine
- Medical advice** : This product contains anticoagulants with an effect similar to
warfarin in that they act by interfering with the synthesis of
prothrombin.
The specific measure of effect is the prothrombin time. Note
this may not become prolonged until 12-18 hours after
ingestion.
The specific antidote is vitamin K1 (Phytomenandione)
Antidote must be administered under medical supervision.
Initially, antidote should be given by injection (10-20mg, or
0.25mg/kg for children, by slow intravenous infusion at a rate
not exceeding 1mg/minute. In severe cases the use of fresh
frozen plasma may be required).
Maintenance treatment is given orally (40mg/day in divided
doses for adults; up to 20mg/day in divided doses for children)
The prothrombin time and the haemoglobin should be
monitored. Patients should be kept under medical supervision
until the prothrombin time has been normal for 3 consecutive
days.
Oral treatment may need continuing for several months
(20mg/day in divided doses for adults and up to 20mg/day in
divided doses for children). (For animal cases the dose is 2-
5mg/kg)

5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media** : Extinguishing media - small fires
Use water spray, alcohol-resistant foam, dry chemical or
carbon dioxide.
Extinguishing media - large fires
alcohol-resistant foam
water spray
- Extinguishing media which must not be used for safety reasons** : Do not use a solid water stream as it may scatter and spread
fire.
- Specific hazards during** : As the product contains combustible organic components, fire

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- fire fighting** : will produce dense black smoke containing hazardous products of combustion (see section 10).
Exposure to decomposition products may be a hazard to health.
- Special protective equipment for fire-fighters** : In the event of fire, wear self-contained breathing apparatus.
- Further information** : Do not allow run-off from fire fighting to enter drains or water courses.
Cool closed containers exposed to fire with water spray.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions** : Refer to protective measures listed in sections 7 and 8.
- Environmental precautions** : Prevent further leakage or spillage if safe to do so.
Do not flush into surface water or sanitary sewer system.
- Methods for cleaning up** : Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
- Additional advice** : If the product contaminates rivers and lakes or drains inform respective authorities.

7. HANDLING AND STORAGE**HANDLING**

- Advice on safe handling** : No special protective measures against fire required.
Avoid contact with skin and eyes.
When using, do not eat, drink or smoke.
For personal protection see section 8.

STORAGE

- Requirements for storage areas and containers** : No special storage conditions required.
Keep containers tightly closed in a dry, cool and well-ventilated place.
Keep out of the reach of children.
Keep away from food, drink and animal feedingstuffs.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with workplace control parameters

Components	Exposure limit(s)	Value type	Source
brodifacoum	0.002 mg/m ³	8 h TWA	SYNGENTA
propane-1,2-diol	10 mg/m ³ 150 ppm 470 mg/m ³	Particulates Total (vapour & particulates)	8 h TWA UK HSE

ENGINEERING MEASURES

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.

The extent of these protection measures depends on the actual risks in use.

If airborne mists or vapors are generated, use local exhaust ventilation controls.

Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit.

Where necessary, seek additional occupational hygiene advice.

PERSONAL PROTECTIVE EQUIPMENT

- Protective measures** : The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice. Personal protective equipment should be certified to appropriate standards.
- Respiratory protection** : No personal respiratory protective equipment normally required. A particulate filter respirator may be necessary until effective technical measures are installed.
- Hand protection** : Chemical resistant gloves should be used. Gloves should be certified to an appropriate standard. Gloves should have a minimum breakthrough time that is appropriate to the duration of exposure. The breakthrough time of gloves varies according to the thickness, material and manufacturer. Gloves should be changed when breakthrough is suspected. Suitable material:
nitrile rubber
- Eye protection** : Eye protection is not usually required. Follow any site specific eye protection policies.
- Skin and body protection** : Assess the exposure and select chemical resistant clothing based on the potential for contact and the permeation / penetration characteristics of the clothing material. Wash with soap and water after removing protective clothing. Decontaminate clothing before re-use, or use disposable equipment (suits, aprons, sleeves, boots, etc.) Wear as appropriate:
impervious protective suit

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9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: liquid
Colour	: blue
Odour	: odorless
Boiling point/range	: 187 °C
Flash point	: 90 °C
Oxidizing properties	: not oxidizing
Explosive properties	: Not explosive
Vapour pressure	: 0.07 mmHg at 20 °C
Density	: 1.124 g/ml
Solubility in other solvents	: Miscible in water : soluble in ethanol . diethylether

10. STABILITY AND REACTIVITY

Hazardous decomposition products	: Combustion or thermal decomposition will evolve toxic and irritant vapors.
Hazardous reactions	: None known. Hazardous polymerization does not occur. Stable under normal conditions.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	: LD50 female Rat, 22 mg/kg Derived from components
	: LD50 male Rat, 17 mg/kg Derived from components
Acute inhalation toxicity	: LC50 male Rat, 194 µg/l, 4 h Derived from components
Acute dermal toxicity	: LD50 female Rat, 126 mg/kg Derived from components
	: LD50 male Rat, 208 mg/kg Derived from components
Skin irritation	: Rabbit: Non-Irritating

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Derived from components

Eye irritation : Rabbit: Non-Irritating
Derived from components

Sensitization : guinea pig
Not a sensitizer
Remarks: Derived from components

Long term toxicity

Did not show carcinogenic, teratogenic or mutagenic effects in animal experiments.

Excessive exposure slows blood clotting time and can cause bleeding, shock and death., This information applies to brodifacoum.

12. ECOLOGICAL INFORMATION**ELIMINATION INFORMATION (PERSISTENCE AND DEGRADABILITY)**

Bioaccumulation : Brodifacoum has high potential to bioaccumulate.

Stability in water : Brodifacoum is persistent in water

Stability in soil : Brodifacoum is persistent in soil

Mobility : Brodifacoum has low mobility in soil.

ECOTOXICITY EFFECTS

Toxicity to fish : LC50 *Oncorhynchus mykiss* (rainbow trout), 2 mg/l , 96 h
Derived from components

Toxicity to aquatic invertebrates : EC50 *Daphnia magna* (Water flea), 36 mg/l , 48 h
Derived from components

13. DISPOSAL CONSIDERATIONS

Product : Where possible recycling is preferred to disposal or incineration.
It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations.

Contaminated packaging : Dispose of as unused product.

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14. TRANSPORT INFORMATION**Land transport***ADR/ RID:*

UN-No: 3026
Class: 6.1
Danger Label Number : 6.1
Packaging group I
Proper shipping name : COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC
(BRODIFACOUM)

Sea transport*IMDG:*

UN-No: 3026
Class: 6.1
Danger Label Number : 6.1
Packaging group: I
Proper shipping name : COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC
(BRODIFACOUM)

Marine pollutant : Marine pollutant

Air transport*IATA-DGR*

UN-No: 3026
Class: 6.1
Danger Label Number : 6.1
Packaging group: I
Proper shipping name : COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC
(BRODIFACOUM)

15. REGULATORY INFORMATION**Labelling according to EC Directives**

Hazardous components which must be listed on the label:

- brodifacoum

Symbol(s) : T Toxic

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	N	Dangerous for the environment
R-phrase(s)	: R24/25 R48/21/22 R50/53	Toxic in contact with skin and if swallowed. Harmful: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrase(s)	: S36/37 S45 S60 S61	Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.
Note	: The preparation is classified as dangerous in accordance with Directive 1999/45/EC.	

16. OTHER INFORMATION

Further information

Text of R phrases mentioned in Section 2:

R27/28	Very toxic in contact with skin and if swallowed.
R48/24/25	Toxic: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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