

Section 1 – Identification of Chemical Product & Company

Supplier 1: Dasco Daviesway
Street Address: 24-26 Helen Street, Heidelberg Heights, VIC
Telephone: +61 3 9459 4533
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After Hours Numbers

Emergency Telephone Number

National Poisons Centre: Australia: 13 11 26
New Zealand: 0800 764 766

Substance: Brodifacoum rodenticide - anticoagulant compound.
Trade Name: X-verminator Single Feed Lethal Dose Rodent Blocks
Product Use: Rodenticide for use as described on the product label.
Creation Date: June 2010

Section 2 - Hazards Identification

Statement of Hazardous Nature

This product is classified as hazardous according to the criteria of ASCC Australia.
Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code or UN code.

Risk Phrases: R22. Harmful if swallowed.
Safety Phrases: S2, S20. Keep out of reach of children. When using, do not eat or drink.
SUSDP Classification: S6
ADG Classification: None allocated. Not a Dangerous Good.
UN Number: None allocated

Emergency Overview

Physical Description & colour: Blue rectangular blocks with a central hole.

Odour: Chocolate odour.

Major Health Hazards: Ingestion of Brodifacoum will not initially present any symptoms but even small amounts may affect prothrombin (blood clotting) time. Coagulation disturbances may become evident a few days after ingestion, and may be detectable only from laboratory tests. When severe poisoning occurs, symptoms will include gum-bleeding, haematomata, blood in urine and faeces and an abnormal tendency to haemorrhage. Internal bleeding is a further risk in serious poisoning cases and can be life-threatening. No other adverse effects such as mutagenicity or carcinogenicity are known to occur.

Potential Health Effects

See section 11 for chronic exposure studies.

Inhalation

Short term exposure: Available data indicates that this product is not harmful. In addition, this product may be mildly irritating, but is unlikely to cause anything more than mild transient discomfort.

Skin Contact:

Short term exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. In addition, this product is unlikely to cause any discomfort in normal use.

Eye Contact:

Short term exposure: Available data shows that this product is not harmful.

Ingestion:

Short term exposure: This product is harmful if swallowed. See symptoms above.

Carcinogen Status:

ASCC: No significant ingredient is classified as carcinogenic by ASCC.

NTP: No significant ingredient is classified as carcinogenic by NTP.

IARC: No significant ingredient is classified as carcinogenic by IARC.

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc, %	TWA (mg/m ³)	STEL (mg/m ³)
Brodifacoum	56073-10-0	0.005	not set	not set
Other non hazardous ingredients	NA	Balance	not set	not set

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

Section 4 - First Aid Measures

General Information:

Call The Poisons Information Centre as soon as possible if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia and is available at all times. Use this SDS or the product label when you call in order to explain precisely the properties of the product.

Brodifacoum is a long lasting anticoagulant. In severe poisoning cases Vitamin K1 (phytomenadione) should be administered by medical or appropriate paramedical personnel. If administered intravenously, the injection must be given slowly.

Inhalation: First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Skin Contact: No specific health data is available for this product. If any unusual symptoms become evident, or if in doubt, contact a Poisons Information Centre or a doctor.

Eye Contact: First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Ingestion: If swallowed, do NOT induce vomiting. Wash mouth with water and contact a Poisons Information Centre, or call a doctor.

Section 5 – Fire Fighting Measures

Fire and Explosion Hazards: There is no risk of an explosion from this product under normal circumstances if it is involved in a fire. Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

Extinguishing Media: Preferred extinguishing media are carbon dioxide, dry chemical, foam, water fog.

Fire Fighting:

Flash point:	Not flammable.
Upper Flammability Limit:	No data.
Lower Flammability Limit:	No data.
Auto-ignition temperature:	No data.
Flammability Class:	No data.

Section 6 – Accidental Release Measures

Accidental release: In the event of a major spill, take measures to prevent spillage from entering drains or water courses and to prevent exposure to livestock, pets and wildlife. As a minimum, wear overalls and gloves. Suitable materials for protective clothing include cotton, rubber, PVC. Place recovered material into bins for disposal.

Stop leak if safe to do so, and contain spill. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this SDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal.

Thoroughly launder protective clothing before storage or re-use.

Section 7 – Handling and Storage

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this SDS for details of personal protective measures, and make sure that those measures are followed.

The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.

Storage: This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this class of poison. Make sure that containers of this product are kept tightly closed. Make sure that the product does not come into contact with substances listed under "Materials to avoid" in Section 10. Check packaging – there may be further storage instructions on the label.

Section 8 - Exposure Controls and Personal Protection

The following Australian Standards will provide general advice regarding safety clothing and equipment:
Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Industrial Clothing: **AS2919**, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

Exposure Limits

TWA (mg/m³)

STEL (mg/m³)

Exposure limits have not been established by ASCC for any of the significant ingredients in this product.

The ADI for Brodifacoum is set at 0.0000005mg/kg/day. The corresponding NOEL is set at 0.001mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, January 2001.

Ventilation: No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and that dusts are minimised.

Eye Protection: Eye protection is not normally necessary when this product is being used. However, if in doubt, wear suitable protective glasses or goggles.

Skin Protection: The information at hand indicates that this product is not harmful and that normally no special skin protection is necessary. However, we suggest that you routinely avoid contact with all chemical products and that you wear suitable gloves (preferably elbow-length) when handling this product.

Protective Material Types: We suggest that protective clothing be made from the following materials: cotton, rubber, PVC.

Respirator: If there is a significant chance that dusts are likely to build up in the area where this product is being used, we recommend that you use a suitable Dust Mask. Use a P3 mask, designed for use against all particulates including highly toxic materials.

Section 9 - Physical and Chemical Properties

Physical Description & colour:	Blue pellets.
Odour:	Mild odour.
Boiling Point:	Not applicable.
Freezing/Melting Point:	Decomposes before melting.
Volatiles:	No specific data. Expected to be low at 100°C.
Vapour Pressure:	No data. Expected to be negligible at normal room temperatures.
Vapour Density:	No data.
Specific Gravity:	No data.
Water Solubility:	No data. Some ingredients expected to be soluble.
pH:	No data.
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water distribution:	No data.
Autoignition temp:	No data.

Section 10 – Stability and Reactivity

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

Conditions to Avoid: This product should be kept in a cool, dry place but should not be refrigerated. Cyclic heating and cooling will cause accelerated degradation of the product.

Incompatibilities: strong oxidising agents.

Fire Decomposition: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Water Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: This product is unlikely to undergo polymerisation processes.

Section 11 – Toxicological Information

Toxicity: Brodifacoum is a bromylated hydroxycoumarin derivative; an indirect anti-coagulant; and an effective stomach poison which inhibits prothrombin formation and induces capillary damage. To be effective it usually requires only a single ingestion of a bait formation in one feeding to produce a kill. It is extremely toxic to a broad spectrum of rodents and other small mammals but due to its low bait concentration and its delayed effect it is considered to be only of low acute toxicity hazard to humans. Brodifacoum acts through the interruption of the vitamin K1-epoxide cycle, preventing vitamin K activation rather than depleting its body reserves. The anticoagulant effect of Brodifacoum may last for more than 7 weeks in the poisoned patient. Ingestion of Brodifacoum is initially asymptomatic, and may continue as such even with prolonged alterations in prothrombin time. No gastrointestinal tract or other symptomatology occurs. Coagulation disturbances may become evident a few days after ingestion, and may be detected only by laboratory studies. In severe poisoning, gumbleeding, epistaxis, petechiae, ecchymoses, haematomata, blood in urine and faeces, and genital haemorrhage may occur. Internal bleeding and cerebral haemorrhage may complicate the patient's prognosis. The course of poisoning is characteristically long. Alterations of coagulation parameters and clinical symptoms of bleeding may be maintained for several days if no treatment is provided. The prognosis is poor in cases with internal bleeding or intracerebral haemorrhage, and also in patients with previous haematological illnesses or renal insufficiency. Death however, is uncommon.

Oral LD50:

White laboratory rate (oral) LD ₅₀	0.26 mg/kg B/W
Mouse (oral) LD ₅₀	0.40 mg/kg B/W
Cats (oral) LD ₅₀	25.0 mg/kg B/W
Dogs (oral) LD ₅₀	3.56 mg/kg B/W
Brush-tailed possum (oral) LD ₅₀	0.8 mg/kg B/W

Section 12 – Ecological Information

Brodifacoum does not enter the atmosphere, because of its low volatility. It is practically insoluble in water. Brodifacoum is strongly bound on soil particles and is not taken up by plants. The rate of degradation is relatively slow and depends on soil type. Residues in crops have never been detected in field studies. Brodifacoum is not intended for direct application to growing crops or for use as a food additive. No information is available on concentrations in air, water, and soil. Residues of Brodifacoum were detected in dead barn owls in the United Kingdom at levels of 0.019-0.515 mg/kg. Brodifacoum residues were also found in the liver, muscle, and fatty tissues of rabbits, intentionally poisoned during field trials with baits containing 0.005% active ingredient, at concentrations of 4.4, 0.26, and 0.86 mg/kg, respectively.

Brodifacoum is adsorbed by soils of widely different types and is of low mobility in soil. Bio-degradation and decomposition of brodifacoum in soils is slow but brodifacoum breaks down readily in soils pH 5.5 - pH8 under both aerobic and flooded conditions. Studies have shown that the rate at which brodifacoum is adsorbed by soil and degraded by soil is related to the organic content of the soil and soil alkalinity. Leaching studies have shown that brodifacoum's mobility was less than 2% over 2 cm. A study which applied up to 15 times the expected normal application rate of brodifacoum bait to rangelands and harvested grass from the same area 3 days later showed that residues in the grass did not exceed 0.002 mg/kg of brodifacoum. There is therefore no significant transfer of brodifacoum residues from soil into grass or indications of phytotoxicity.

Non-target organisms are potentially at risk in two ways: from direct consumption of baits (primary hazard) and through eating poisoned rodents (secondary hazard).

Bird species vary in their susceptibility to Brodifacoum. The main reason for the poisoning of domestic animals is direct consumption of Brodifacoum baits. Brodifacoum shows a similar range of acute toxicity for non-target and target mammals. The primary hazard is usually expressed by the amount of finished bait that must be consumed to approach the lethal dose. Some secondary toxicity laboratory studies on wildlife have shown that captive predators

could be intoxicated by the no-choice feeding of Brodifacoum-poisoned or dosed prey. The significance of these results in terms of hazard under field conditions is difficult to assess, because the predators would not be expected to eat only poisoned animals. However, predators may take poisoned, but not dead, small mammals preferentially. In areas close to baiting, poisoned rodents may represent a high proportion of the diet for individual birds. However, only few individuals will be affected, unless there has been very widespread and constant use of the baits.

Section 13 – Disposal Considerations

Disposal: Product which is damaged or spoiled should be disposed of by burying with other organic material on the active tip face of an appropriately managed landfill or buried within the biologically active layer of soil elsewhere within a secure area. Ensure that a good covering of earth is applied over the bait immediately to prevent access by scavenging birds. Alternatively, burn unwanted bait material in a suitably constructed and appropriately located incinerator and bury any residues as above. The emissions from burning bait are likely to cause nausea, so ensure wind direction is favourable before burning. Treating the baits through a sewage oxidation facility or other chemical treatment facility is also an acceptable means of disposing of unwanted bait material. Bury empty containers at a landfill. Do not use the empty container for any other purpose.

For help with the collection of unwanted rural chemicals, contact ChemClear 1800 008 182

Section 14 – Transport Information

ADG Code: This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.

Section 15 – Regulatory Information

AICS: All of the significant ingredients in this formulation are to be found in the public AICS Database.

Section 16 – Other Information

This product is toxic to most wildlife. Birds and mammals feeding on carcasses of contaminated animals may be killed. Take measures to minimise the chance of baits entering any body of water. Apply the product only as specified by its label directions.

Do not use poisoned or contaminated animals for food or feed. Where practicable, the exposed bodies of all poisoned animals should be collected and destroyed by complete burning or deep burial at a landfill approved for hazardous wastes.

CONSULT NEAREST POISON CONTROL CENTER FOR CURRENT INFORMATION.

All information contained in this Safety Data Sheet is as accurate and up-to-date as possible. Since Dasco cannot anticipate or control the conditions under which this information may be used, each user should review the information in the specific context of the intended application. This SDS contains only safety-related information. For other data see product literature.