

# Material Safety Data Sheet

## BITHOR\* Granular Insecticide

### Section 1 - IDENTIFICATION OF CHEMICAL PRODUCT AND COMPANY

This product is NOT classified as Hazardous according to the criteria of NOHSC Australia.

Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code.

Safe for use around Food Handling Premises when used according to label directions.

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**Substance:** Bifenthrin is a pyrethroid derivative.

**Trade Name:** Bithor Granular Insecticide

**Product Use:** Insecticide for use as described on the product label.

**Creation Date:** February, 2004

**Revision Date:** February, 2010

### Section 2 - HAZARDS IDENTIFICATION

This product is classified as: NOT hazardous according to the criteria of NOHSC Australia.

Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code.

<b>Risk Phrases:</b>	Not Hazardous - No criteria found.
<b>Safety Phrases:</b>	Not Hazardous - No criteria found.
<b>SUSDP Classification:</b>	Not scheduled.
<b>ADG Classification:</b>	None allocated. Not a Dangerous Good.
<b>UN Number:</b>	None allocated

#### Emergency Overview

<b>Physical Description &amp; colour:</b>	White to off-white granular solid.
<b>Odour:</b>	Mild odour.
<b>Major Health Hazards:</b>	No significant risk factors have been found for this product.

#### Potential Health Effects

**Inhalation:**

**Short term exposure:** Significant inhalation exposure is considered to be highly unlikely. Available data indicates that this product is not harmful. In addition product is unlikely to cause any discomfort or irritation.

**Long Term exposure:** No data for health effects associated with long term inhalation.

**Skin Contact:**

**Short term exposure:** Data indicates that this product is not harmful. It should present no hazards in normal use. Product may be irritating, but is unlikely to cause anything more than mild transient discomfort.

**Long Term exposure:** No data for health effects associated with long term skin exposure.

**Eye Contact:**

**Short term exposure:** Exposure via eyes is considered to be unlikely. This product may be irritating to eyes, but is unlikely to cause anything more than mild transient discomfort.

**Long Term exposure:** No data for health effects associated with long term eye exposure.

**Ingestion:**

**Short term exposure:** Significant oral exposure is considered to be unlikely. This product is unlikely to cause any irritation problems in the short or long term.

**Long Term exposure:** No data for health effects associated with long term ingestion.

**Carcinogen Status:**

**NOHSC:** No significant ingredient is classified as carcinogenic by NOHSC.

**NTP:** Silica is classed by NTP as a known carcinogen to humans.

**IARC:** Silica is classed by IARC as being carcinogenic to humans.

### Section 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS No	Conc, %	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Bifenthrin	82657-04-3	0.2	not set	not set
Other non hazardous ingredients	secret	Approx 4	not set	not set
Silica	14808-60-7	to 100	0.2	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.

The TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak" is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

### Section 4 - FIRST AID MEASURES

**General Information:**

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this MSDS with you when you call.

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

**Skin Contact:** Irritation is unlikely. However, if irritation does occur, flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed. If in doubt obtain medical advice.

**Eye Contact:** No effects expected. If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the product is removed. Obtain medical advice if irritation becomes painful or lasts more than a few minutes.

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

Only small quantities of decomposition products are expected from this products at temperatures normally achieved in a fire.

Fire decomposition products from this product may be harmful if inhaled. Take suitable protective measures.

**Extinguishing Media:** Not Combustible. Use extinguishing media suited to burning materials.

**Fire Fighting:** If a significant quantity is involved in a fire, call the fire brigade.

**Flash point:** Does not burn.

**Upper Flammability Limit:** Does not burn.

**Lower Flammability Limit:** Does not burn.

**Autoignition temperature:** Not applicable - does not burn.

**Flammability Class:** Does not burn.

## Section 6 - ACCIDENTAL RELEASE MEASURES

**Accidental release:** In the event of a major spill, prevent spillage from entering drains or water courses. As a minimum, wear overalls, goggles and gloves. Suitable materials for protective clothing include cotton, rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective glasses and, preferably, goggles. If there is a significant chance that dusts are likely to build up in cleanup area, we recommend that you use a suitable Dust Mask. Stop leak and contain spill. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Consider vacuuming if appropriate. 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 MSDS 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. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

## Section 7 - HANDLING AND STORAGE

**Handling:** Keep exposure to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this MSDS 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:** Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. 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/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Silica	0.2	not set

The ADI for Bifenthrin is set at 0.01mg/kg/day. The corresponding NOEL is set at 1mg/kg/day.

*ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, Aug 2003.*

**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 recommended when this product is being used.

**Skin Protection:** You should avoid contact even with mild skin irritants. Therefore you should wear suitable impervious elbow-length gloves and facial protection when handling. See below for suitable material types.

**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.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical Description &amp; colour:</b>	White to off-white granular solid.
<b>Odour:</b>	Mild odour.
<b>Boiling Point:</b>	Not applicable.
<b>Freezing/Melting Point:</b>	Decomposes before melting.
<b>Volatiles:</b>	No specific data. Expected to be low at 100°C.
<b>Vapour Pressure:</b>	No data.
<b>Vapour Density:</b>	No data.
<b>Specific Gravity:</b>	No data.
<b>Water Solubility:</b>	Slightly soluble.
<b>Odour Threshold:</b>	No data.
<b>Autoignition temp:</b>	Not applicable - does not burn.

## 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:** Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

**Incompatibilities:** No particular incompatibilities.

**Fire Decomposition:** Only small quantities of decomposition products are expected from this products at temperatures normally achieved in a fire. Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Water. silicon compounds, silicon compounds. 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:** Bifenthrin is harmful to mammals when ingested. Large doses may cause incoordination, tremor, salivation, vomiting, diarrhoea, and irritability to sound and touch. LD<sub>50</sub> for Bithor is greater than 5,000 mg/kg in rats. The LD<sub>50</sub> for rabbits whose skin is exposed to bifenthrin is greater than 2,000 mg/kg. Bifenthrin does not sensitise the skin of guinea pigs. Although it does not cause inflammation or irritation on human skin, it can cause a tingling sensation which lasts about 12 hours. It is virtually non-irritating to rabbit eyes.

**Chronic Toxicity:** No information available.

**Reproductive Effects:** The dose at which no toxic effect of bifenthrin is observed on the mother (maternal toxicity NOEL) is 1 mg/kg/day for rats and 2.67 mg/kg/day for rabbits. At higher doses, test animals had tremors. The dose at which no toxic effect is observed on development (developmental toxicity NOEL) is 1 mg/kg/day for rats and is greater than 8 mg/kg/day for rabbits.

**Teratogenic Effects:** Bifenthrin does not demonstrate any teratogenic effects at the highest levels tested (100 ppm, approximately 5.5 mg/kg/day) in a two-generational study in rats.

**Mutagenic Effects:** Evidence of mutagenic effects from exposure to bifenthrin are inconclusive. Studies of mouse white blood cells were positive for gene mutation. However, other tests of bifenthrin's mutagenic effects, including the Ames test and studies in live rat bone marrow cells, were negative.

**Carcinogenic Effects:** There was no evidence of cancer in a 2-year study of rats who ate as much as 10 mg/kg/day of bifenthrin.

**Fate in Humans and Animals:** Bifenthrin is absorbed through intact skin when applied topically. It undergoes similar modes of breakdown within animal systems as other pyrethroid insecticides. In mammals, bifenthrin is rapidly broken down and promptly excreted. Rats treated with 4 to 5 mg/kg, excreted 70 % in the urine and 20% in the faeces within 7 days. After 7 days, the remaining bifenthrin was found accumulated in tissues with high fat content such as the skin and fat in males and females and the ovaries of females. Bifenthrin is less toxic to warm-blooded animals, such as mammals, than to cold-blooded animals.

## Section 12 - ECOLOGICAL INFORMATION

**Effects on Birds:** Bifenthrin is moderately toxic to many species of birds. The dietary concentration (8 day) at which half of the test animals die, the LC<sub>50</sub>, is 1,280 ppm for mallard ducks and 4,450 ppm for bobwhite quail. The acute oral LD<sub>50</sub> is 1,800 mg/kg for bobwhite quail and 2,150 mg/kg for mallard ducks. There is concern about possible bioaccumulation in birds.

**Effects on Aquatic Organisms:** Bifenthrin is very highly toxic to fish, crustaceans and aquatic animals. The LC<sub>50</sub> after a 96-hour exposure is 0.00015 mg/l for rainbow trout, 0.00035 mg/l for bluegill, and 0.0016 mg/l for Daphnia. Because of its low water solubility and high affinity for soil, Bifenthrin is not likely to be found in aquatic systems.

**Effects on Other Animals (Non-target species):** Bifenthrin is toxic to bees.

### ENVIRONMENTAL FATE

**Breakdown of Chemical in Soil & Groundwater:** Bifenthrin does not move in soils with large amounts of organic matter, clay and silt. It also has a low mobility in sandy soils that are low in organic matter. Bifenthrin is relatively insoluble in water, so there are no concerns about groundwater contamination through leaching. It's half-life in soil, the amount of time it takes to degrade to half of its original concentration, is 7 days to 8 months depending on the soil type and the amount of air in the soil.

**Breakdown of Chemical in Vegetation:** Bifenthrin is not absorbed by plant foliage, nor does it translocate in the plant.

### Section 13 - DISPOSAL CONSIDERATIONS

**Disposal:** Instructions concerning the disposal of this product and its containers are given on the product label. These should be carefully followed.

### 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 MSDS contains only safety-related information. For other data see product literature.**

**Acronyms:**

<b>ADG Code</b>	Australian Code for the Transport of Dangerous Goods by Road and Rail
<b>AICS</b>	Australian Inventory of Chemical Substances
<b>CAS number</b>	Chemical Abstracts Service Registry Number
<b>Hazchem Number</b>	Emergency action code of numbers and letters that provide information to emergency services especially fire-fighters
<b>IARC</b>	International Agency for Research on Cancer
<b>NOHSC</b>	National Occupational Health and Safety Commission
<b>NOS</b>	Not otherwise specified
<b>NTP</b>	National Toxicology Program (USA)
<b>R-Phrase</b>	Risk Phrase
<b>SUSDP</b>	Standard for the Uniform Scheduling of Drugs & Poisons
<b>UN Number</b>	United Nations Number

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user must review this MSDS in the context of how the product will be handled and used in the workplace.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact Ensystem so we can attempt to obtain additional information from our suppliers

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

Please read all labels carefully before using product.