

# Material Safety Data Sheet

## BUG

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

This product is classified as Hazardous according to the criteria of NOHSC Australia.

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

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**Substance:** Bifenthrin is a pyrethroid derivative. Imidacloprid is a nicotinic insecticide.

**Creation Date:** April 2011

**Reviewed on:** May 2013

### Section 2 - HAZARDS IDENTIFICATION

**Risk Phrases:** R22. Harmful if swallowed.  
**Safety Phrases:** S13, S20, S23, S45, S1/2, S36/37. Keep away from food, drink and animal feeding stuffs. When using, do not eat or drink. Do not breathe mists. In case of accident or if you feel unwell, contact a doctor or Poisons Information Centre immediately (show the label where possible). Keep locked up and out of reach of children. Wear suitable protective clothing and gloves.  
**SUSDP Classification:** S6  
**ADG Classification:** None allocated. Not a Dangerous Good.  
**UN Number:** None allocated

#### Emergency Overview

**Physical Description & colour:** White to beige opaque suspension.  
**Odour:** Slight characteristic odour.  
**Major Health Hazards:** Bifenthrin is harmful to mammals when ingested. Large doses may cause incoordination, tremor, salivation, vomiting, diarrhoea, and irritability to sound and touch.

#### Potential Health Effects

See section 11 for Chronic exposure studies.

**Inhalation:**

Available data indicates that this product is not harmful. However product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.

**Skin Contact:**

This product may cause skin tingling but further symptoms are not usual.

**Eye Contact:**

This product may be irritating to eyes, but is unlikely to cause anything more than mild transient discomfort.

**Ingestion:**

Available data shows that this product is harmful, but symptoms are not available. This product is unlikely to cause any irritation problems in the short or long term.

**Carcinogen Status:**

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

**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 <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Bifenthrin	82657-04-3	4.50	not set	not set
Imidacloprid	138261-41-3	5.50	not set	not set
Other non hazardous ingredients	secret	12 approx.	not set	not set
Water	7732-18-5	to 100	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.

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 11 26 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:** No first aid measures normally required. However, if inhalation has occurred, and irritation has developed, remove to fresh air and observe until recovered. If irritation becomes painful or persists for more than about 30 minutes, seek medical advice.

**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:** 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:** Under normal circumstances there is no risk of an explosion from this product if it is involved in a fire.

Only small quantities of decomposition products are expected from this product at temperatures normally achieved in a fire. This will only occur after heating to dryness. Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

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

**Fire Fighting:** If a significant quantity of this product 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. Wear full protective clothing including face mask, face shield and gauntlets. All skin areas should be covered. See Section 8 regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber and PVC.

Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material. If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. 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 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 this product 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. Some liquid preparations settle or separate on standing and may require stirring before use. 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>)**

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

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

**Eye Protection:** Eye protection such as face shield, protective glasses or goggles is recommended when this product is being used.

**Skin Protection:** Prevent skin contact by wearing impervious gloves, overalls and a washable hat. Make sure that all skin areas are covered.

**Respirator:** No respirator is necessary when using the prepared spray. A respirator should be worn when opening the container and preparing the spray.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical Description &amp; colour:</b>	White to beige opaque suspension.
<b>Odour:</b>	Characteristic odour.
<b>Boiling Point:</b>	Approximately 100°C at 100kPa.
<b>Freezing/Melting Point:</b>	Approximately 0°C.
<b>Volatiles:</b>	Water component.
<b>Vapour Pressure:</b>	2.37 kPa at 20°C (water vapour pressure).
<b>Specific Gravity:</b>	Approx. 1.0
<b>Water Solubility:</b>	Completely dispersible in water.
<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 Ensystem 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:** Strong alkalis, oils.

**Fire Decomposition:** Only small quantities of decomposition products are expected from this products at temperatures normally achieved in a fire. This will only occur after heating to dryness. Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke.

**Polymerisation:** This product is unlikely to undergo polymerisation processes.

## Section 11 - TOXICOLOGICAL INFORMATION

**Toxicity for Product:** Oral toxicity: LD<sub>50</sub> rat: ~1,098 mg/kg i.e. low-toxic,

Dermal toxicity: LD<sub>50</sub> rat: >2,000 mg/kg i.e. low-toxic

**Chronic Toxicity:** No information available.

**Reproductive Effects:** The dose at which no toxic effect for technical grade 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.

For technical grade imidacloprid the NOAEL for maternal effects was 10 mg/kg bw per day, and the NOAEL for developmental effects was 30 mg/kg bw per day (Becker et al., 1988a).

**Teratogenic Effects:** Neither bifenthrin nor imidacloprid demonstrated any teratogenic effects at the highest levels tested in two-generational studies 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 technical grade bifenthrin in rats who ate as much as 10 mg/kg/day of bifenthrin. For technical grade imidacloprid there is no evidence of cancer in any studies.

## Section 12 - ECOLOGICAL INFORMATION

### Technical grade bifenthrin:

**Effects on Birds:** Bifenthrin is moderately toxic to 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.

**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.

**Other Animals:** Bifenthrin is toxic to bees.

### Technical grade imidacloprid:

**Effects on Birds:** Imidacloprid is low toxic to birds. Mallard: >5,000 mg/kg, bobwhite quail: 152 mg/kg, Japanese quail: 152 mg/kg. Dietary (acute), Bobwhite quail 2,225 mg/kg.

**Aquatic Organisms:** Golden orfe LC<sub>50</sub> (96hr): 237 mg/L, rainbow trout LC<sub>50</sub> (96 h): 211 mg/L. Daphnia LC<sub>50</sub> (48 hr): 85 mg/L.

**Other Animals:** No adverse effects reported in soil micro-organisms. Earthworms, LC<sub>50</sub> for *Eisenia foetida* 10.7 mg/kg dry soil. Harmful to honey bees by direct contact.

## 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 Dangerous Goods. 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.