

# Material Safety Data Sheet

## Deltathor Plus\* 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.

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 1800 420 144

**Substance:** Water-based solution of deltamethrin with tetramethrin and synergist.

**Trade Name:** Deltathor Plus Insecticide

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

**Creation Date:** November, 2003

**Revision Date:** October, 2004

### Section 2 - Composition/Information on Ingredients

Ingredients	CAS No	Conc,%	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Deltamethrin	52918-63-5	1	not set	not set
Tetramethrin	7696-12-0	1	not set	not set
Piperonyl butoxide	51-03-6	8	not set	not set
Other non hazardous ingredients	secret	to 100	not set	not set

This is a commercial product whose exact ratio of components may vary slightly.

### Section 3 - Hazards Identification

**Statement of Hazardous Nature**

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.

**Safety Phrases:** S20, S36/37. When using, do not eat or drink. Wear suitable protective clothing.

**SUSDP Classification:** S5

**ADG Classification:** None allocated. Not a Dangerous Good.

**UN Number:** None allocated

### Emergency Overview

**Physical Description & colour:** Milky white liquid.

**Odour:** Negligible.

**Major Health Hazards:** Physical signs of deltamethrin poisoning can include dermatitis after skin contact; exposure to sunlight can make it worse. Swelling of the face including lips and eyelids can occur. Symptoms and consequences of poisoning include: sweating, fever, anxiety and rapid heartbeat. If swallowed, symptoms are likely to include feeling sick, vomiting, diarrhoea, twitching of arms and legs, and convulsions if poisoning is severe.

## 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 product is unlikely to cause any discomfort or irritation.

### Skin Contact:

**Short term exposure:** This product causes skin numbness but further symptoms are not available. In addition product may be irritating, but is unlikely to cause anything more than mild transient discomfort.

### Eye Contact:

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

### Ingestion:

**Short term exposure:** This product is unlikely to cause any irritation problems in the short or long term. May cause gastric upset.

### Carcinogen Status:

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

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

**IARC:** Deltamethrin is Class 3 - unclassifiable as to carcinogenicity to humans.

Piperonyl Butoxide is Class 3 - unclassifiable as to carcinogenicity to humans.

## Section 4 - First Aid Measures

### General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned or irritated by this product. The number is 13 11 26 from anywhere in Australia 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:** If swallowed, do NOT induce vomiting. Wash mouth with water and contact a Poisons Information Centre, or call a doctor if symptoms of poisoning develop.

## 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. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids.

This product is likely to decompose only after heating to dryness, followed by further strong heating.

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:** When fighting fires involving significant quantities of this product, wear a splash suit complete with self contained breathing apparatus.

**Flash point:** Will not burn until water component is driven off.

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

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

**Autoignition temperature:** 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 above under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber, PVC, butyl rubber. 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:** This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this class of poison. 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. Product may settle on standing and shaking before use is recommended.

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

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

The ADI for tetramethrin is set at 0.02mg/kg/day. The corresponding NOEL is set at 2mg/kg/day.

The ADI for piperonyl butoxide is set at 0.1mg/kg/day. The corresponding NOEL is set at 16mg/kg/day.

ADI - Acceptable Daily Intake; NOEL No-observable-effect-level. Australian ADI List, Dec 2002.

**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 is recommended when this product is being used.

**Skin Protection:** Prevent skin contact by wearing impervious gloves, clothes and, preferably, apron. Make sure that all skin areas are covered. See below for suitable material types.

**Protective Material Types:** We suggest protective clothing be made from rubber, PVC, butyl rubber.

**Respirator:** Usually, no respirator is necessary when using this product.

## Section 9 - Physical and Chemical Properties:

<b>Physical Description &amp; colour:</b>	Milky white liquid.
<b>Odour:</b>	Negligible.
<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 1.01 at 20°C
<b>Water Solubility:</b>	Forms suspension when mixed with water.
<b>pH:</b>	Normally about pH 6-7.
<b>Autoignition temp:</b>	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 closed original container in a dry, well-ventilated area out of direct sunlight.

**Incompatibilities:** strong oxidising agents.

**Fire Decomposition:** This product is likely to decompose only after heating to dryness, followed by further strong heating. 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:** The acute oral LD<sub>50</sub> for deltamethrin in male rats typically ranged from 128 mg/kg to greater than 5,000 mg/kg depending on the carrier and conditions of the study. Dogs had a reported LD<sub>50</sub> of 300 mg/kg. The acute percutaneous LD<sub>50</sub> for rats was reported to be greater than 2,000 mg/kg; greater than 10,000 mg/kg for quail; and greater than 4,640 mg/kg for ducks. The acute dermal LD<sub>50</sub> for rabbits was greater than 2,000 mg/kg. No skin irritation and slight eye irritation were reported.

**Chronic Toxicity:** In 2-year feeding trials, the reported NEL (no effect level) was 12 mg/kg diet for mice; and 2.1 mg/kg diet for rats. The dose without activity in rats over a 90-day period was 10 mg/kg/day. Suspected chronic exposure effects in humans include the following: choreoathetosis, hypotension, prenatal damage and shock. Workers exposed to deltamethrin during its manufacture over 7-8 years experienced transient cutaneous and mucous membrane irritation, which could be prevented by use of gloves and face masks. No other ill effects were seen.

**Reproductive Effects:** A reproductive 3-generation study in rats reported a reproductive NOEL to be greater than 2.5 mg/kg/day. Levels tested were 0, 0.1, 1.0 and 2.5 mg/kg/day. Oral administration of deltamethrin to mice on days 7 to 16 of gestation produced a dosage-related reduction of weight gain but no effect on the number of implants, foetal mortality, foetal weight or malformations.

**Teratogenic Effects:** No reported teratogenic effects in mice, rats and rabbits. No teratogenic activity.

**Mutagenic Effects:** No mutagenic effects in mice, rats and rabbits. Deltamethrin has no mutagenic activity.

**Carcinogenic Effects:** No information available.

**Organ Toxicity:** Deltamethrin is hydrolysed by liver microsomal enzymes to 3-(2,2dibromovinyl) 2,2-cyclopropane carboxylic acid and 3-phenoxybenzaldehyde.

**Fate in Humans and Animals:** Elimination of the compound in the rat occurs within 2-4 days of administration. Metabolites of the cyano substituent are eliminated more slowly, and tissue levels remain relatively high, especially in the skin and stomach. Deltamethrin at an oral dosage of 50 mg/kg produces a marked increase of cGMP but not cAMP in the brain of rats. Metabolism of deltamethrin in rats involves rapid ester cleavage and hydroxylation. Deltamethrin has a half-life in the rat brain of 1 to 2 days, but it is more persistent in body fat, with a half-life of 5 days.

Rats and dogs given oral doses of 10 mg/kg/day for 13 weeks exhibited some motor symptoms but no fatalities or pathological changes. The dogs exhibited diarrhoea and vomiting. In another study, rats given 15 daily oral doses of 10 mg/kg showed motor symptoms, but a full neuropathological examination of the central nervous system showed no pathological changes.

A health survey of 199 workers who repacked pyrethroid insecticides into boxes by hand indicated that about two-thirds of the workers had a burning sensation and tightness and numbness on the face, while one-third had sniffs and sneezes. Abnormal sensations in the face, dizziness, tiredness and red rashes on the skin were more common in summer than in winter. Workers did not wear protective gloves in summer because of the heat. The symptoms usually occurred thirty minutes after exposure to the pyrethroids and rarely lasted more than 24 hours. Cold burning and numbness of the skin occurred to two-thirds of humans in a Chinese factory exposed to about 5-12 mg deltamethrin per cubic meter of air. The other third suffered from sneezing and eye-watering. In addition, headache, heartburn and skin spots were reported, and these symptoms were dependent on the time of the year.

## Section 12 - Ecological Information

**Effects on Birds:** The reported 8-day LC<sub>50</sub> for deltamethrin for ducks was greater than 4,640 mg/kg diet; and greater than 10,000 mg/kg diet for quail.

**Effects on Aquatic Organisms:** As is common with all pyrethroids, deltamethrin has a high toxicity to fish under laboratory conditions. However, in field conditions under normal conditions of use, fish are not harmed. Deltamethrin had an impact on aquatic herbivorous insects. This impact led to an increase of algae. Although the fish (fathead minnows) accumulated the deltamethrin, no mortality could be observed. In laboratory trials, the LC<sub>50</sub> for fish was 1-10 micrograms/l. Aquatic fauna, particularly crustacea, may be affected, but fish are not harmed under normal conditions of use.

**Effects on Other Animals (Non-target species):** Deltamethrin is considered toxic to bees. The 24 hour oral LD<sub>50</sub> for technical deltamethrin fed to bees was 0.079µg/bee.

### ENVIRONMENTAL FATE

**Breakdown of Chemical in Soil and Groundwater:** In soil, degradation occurs within 1-2 weeks.

**Breakdown of Chemical in Surface Water:** Deltamethrin in pond water was rapidly adsorbed, mostly by sediment, in addition to uptake by plants and evaporation into the air.

**Breakdown of Chemical in Vegetation:** About 10 days after use, there are no deltamethrin residues observed on plants. There is no known phytotoxicity to crops.

## 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 a Dangerous Good. No special transport conditions necessary.

## 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.