SAFETY DATA SHEET

EnviroMax Deltamethrin 10SC Residual Insecticide

Section 1: Identification	
Product identifier:	EnviroMax Deltamethrin 10SC Residual Insecticide.
Other means of identification:	Deltamethrin suspension concentrate; synthetic pyrethroid insecticide
Recommended use of the chemical and restrictions on use	A liquid, synthetic pyrethroid insecticide concentrate suitable for a broad range of applications as described by the label.
Details of manufacturer	EnviroMax Technologies Pty Ltd Level 3, 549 Queen St., Brisbane, Queensland 4000, Australia
Emergency phone number	61- (0) 4099 26561

Section 2: Hazard Identification	
Hazard Classification:	HAZARDOUS SUBSTANCE. NOT DANGEROUS GOODS Acute toxicity – oral – Category 5 Acute toxicity – dermal – Category 5
Signal Word:	CAUTION
Hazard statements:	Harmful if swallowed
Risk Phrases:	R42 May cause sensitisation by skin contact. R52 Harmful to aquatic organisms.
Safety Phrases:	S2 Keep out of reach of children. S20 When using, do not eat or drink. S36/37 Wear suitable protective clothing.

Section 3: Composition / Information On Ingredients

Chemical Identity of Ingredients

Common Name	CAS Number	Concentration	TWA (mg/m^3)
Deltamethrin	82657-04-3	10 g/L	-
Propylene glycol	57-55-6	<9%	474
Other non-hazardous ingredients	-	To 100%	-

Section 4: First Aid Measures

General Advice:
For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor (at once). 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 more than about 30 minutes, seek medical advice.

Skin Contact:
Blot or brush away excess chemical. Wash gently and thoroughly with water (use non-abrasive soap) for 10 minutes or until chemical is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts). If irritation persists, repeat flushing and obtain medical advice.

Eye Contact:
Quickly and gently blot or brush away product. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water until the product is removed or until a few minutes after irritation has ceased, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face.

Ingestion:
If product is swallowed or gets in mouth, do NOT induce vomiting; wash mouth with water and give water to drink. Call a Poisons Information Centre or a doctor.

Advice to Doctor:
Treat symptomatically.

Section 5: Fire Fighting Measures

Suitable extinguishing media:
Not Combustible. Use extinguishing media suited to burning materials; water spray, foam, dry powder. Contain all runoff.

Hazards from Combustion Products
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.

Precautions for Fire Fighters and Special Protective Equipment
When fighting fires involving significant quantities of this product, wear a splash suit complete with self contained breathing apparatus.

Hazchem Code
3Z.

Additional Information
Contain water from fires to prevent escape to drains and water bodies.

Section 6: Accidental Release Measures

Personal precautions
Use personal protective equipment, including face shield and gloves. Cover all skin areas. See section 8 below.
Avoid contact with spilled product or contaminated surfaces.
Keep unauthorized people away.

Environmental precautions
Prevent spillage from entering drains or water courses.

Methods for cleaning up

Contain and absorb spilled material with absorbent material such as sand clay or cat litter and dispose of waste as indicated below or according to the Australian Standard 2507 - Storage and Handling of Pesticides. If a significant quantity of material enters drains, advise emergency services. This material may be suitable for approved landfill. 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

Precautions for safe handling

Use only in accordance with the instructions provided on the container label, including the Safety Directions.

Conditions for safe storage

Store in a cool, dry, well ventilated location. Avoid excess heat. No smoking eating or drinking should be allowed where material is used or stored. Keep out of the reach of children and animals. Store in original containers only. Do not locate near or contaminate food or feed by storage or disposal. Wash all exposed skin surfaces prior to smoking drinking or eating. All workers should shower at the end of each work day after handling this product. Wash all clothing after each use.

Section 8: Exposure Controls / Personal Protection

National exposure standards

No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and all spills are cleaned up immediately.

Biological limit values

No biological limit allocated.

Engineering controls

Use only in a well ventilated area.

Personal protective equipment

When opening the container, preparing the spray and using the prepared spray wear cotton overalls buttoned to the neck and wrist (or equivalent clothing), elbow-length PVC gloves and faceshield.

Hygiene Measures

If product on skin, immediately wash area with soap and water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. No special ventilation requirements are normally necessary for this product, however use in a well ventilated area to minimise exposure.

Section 9: Physical and Chemical Properties

Appearance:	Beige to white liquid
Odour:	slight odour
pH:	~7.0 (1% w/w solution)
Specific gravity:	1.01 at 20°C
Solubility in water:	Insoluble. Active suspended in water.
Flash point:	>100°C Not flammable
Flammable limits in air:	Not flammable

Section 10: Stability And Reactivity

Reactivity

No conditions for reaction or polymerisation are known.

Chemical stability

Stable under normal storage conditions and use.

Conditions to avoid

Excess heat, ignition sources.

Incompatible materials

Strong acids, strong bases, strong oxidising agents.

Hazardous decomposition products

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. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Hazardous reactions

None when stored and used as directed. Hazardous polymerisation is not possible. This product is unlikely to undergo polymerisation processes

Section 11: Toxicological Information

Acute toxicity

LD50 rat (oral):	> 5,000 mg/kg (product, calculated)
LD50 rat (dermal):	> 5,000 mg/kg (product, calculated)

Deltamethrin Toxicity

Acute Oral LD50:	87 mg/kg; Species: Rat
Acute Dermal LD50:	>2,000 mg/kg Species: Rat
Acute Inhalation LC50:	0.6 mg/L (4 hour, aerosol); Species: Rat
Eye irritation:	Slight irritant; Species: Rabbit
Skin irritation:	Non irritating; Species: Rabbit
Sensitisation:	Not a sensitiser; Species: Guinea Pig

Reproductive effects:

Deltamethrin did not affect reproduction in studies. No treatment related embryotoxic or teratogenic effects were observed in mice, rats and rabbits. The NOAEL for reproductive toxicity was 320 ppm, equal to 18 mg/kg bw/day, the highest dose tested.

Teratogenic Effects: Deltamethrin is not considered to cause teratogenic effects.

Mutagenic Effects: Deltamethrin is not considered to be a mutagen based on negative results from a bacterial DNA assay, an Unscheduled DNA Synthesis (UDS) assay in primary rat hepatocytes, and an in vitro chromosome aberration study.

Carcinogenic Effects: Deltamethrin is not considered to be a carcinogen. Deltamethrin did not increase tumour incidence in mice fed technical grade deltamethrin at daily doses of 0, 1, 5, 25, or 100 ppm for two year. No carcinogenic effects were found in rats fed technical grade deltamethrin at daily doses of 0, 2, 20, or 50 mg/kg for two years.

Organ Toxicity: Pyrethroids are poisons that affect the electrical impulses in nerves, over-stimulating nerve cells causing tremors and eventually causing paralysis.

Fate in Humans and Animals: Deltamethrin is considered to be readily absorbed when administered orally. Rats absorbed 3.6% of the deltamethrin applied to their skin, which was then excreted within 24 hours. Absorption of deltamethrin through human skin is expected to be relatively weak. Deltamethrin was poorly absorbed from the gastrointestinal tract of lactating cows. Deltamethrin was absorbed by rats after they were fed plant material with deltamethrin residues. Deltamethrin distributed to nerve tissues and all regions of the brain tested. There is little tendency for deltamethrin to accumulate in tissues. In rats, deltamethrin had a half-life in blood of 5.5 hours. Human volunteers ingested a single dose of 3 mg deltamethrin and researchers tested urine, faeces, saliva, and blood samples. The highest levels in the blood were observed within one to two hours after the exposure. The elimination half-life ranged from 10.0-11.5 hours in plasma and 10.0-13.5 hours in urine. The majority of ingested deltamethrin (64-77%) was excreted in faeces and urine within four days of exposure.

Other information

The ADI for Deltamethrin 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, Dec 2002.

Section 12: Ecological Information

ENVIRONMENTAL TOXICITY

Effects on Birds:

Deltamethrin is practically non-toxic to birds, acute oral LD50 for mallard ducks >4640 mg/kg; 8-day dietary LC50 >8039 mg/kg for mallard ducks and >5620 mg/kg for quail. Deltamethrin did not affect the reproduction of female Japanese quail when fed up to 1.0 mg for 34 days.

Effects on Aquatic Organisms:

Deltamethrin is moderately to highly toxic to fish: 96-hour LC50 ranges from 0.91-3.50 µg/L. However field applications of deltamethrin are not expected to affect fish as it binds tightly to soil and breaks down quickly. Deltamethrin spiked water with artificial sediment was highly toxic to larvae of the midge Chironomus riparius with a 28-day LC50 of 16 pg/L. Deltamethrin spiked water with natural sediment had no effect on larval survival or development rate.

Effects on Other Animals (Non-target species):

Deltamethrin is highly toxic to honeybees: oral LD50 51 ng/bee and a contact LD50 of 51 ng/bee. In field studies, deltamethrin did not harm bees at rates up to 12.5 g a.i./ha and formulated products had a repellent effect lasting for 2-3 hours. No effects on earthworms in soil at 12.5 g/ha of deltamethrin for 28 days.

ENVIRONMENTAL FATE

Persistence:

Aerobic half-life in soil is 26 days in lab conditions, and 21 days in field dissipation studies. Deltamethrin was stable to hydrolysis in solutions of pH 5 and 7. In a pH 9 solution, the average half-life was 2.5 days.

Mobility:

Deltamethrin is considered relatively immobile in soils. Deltamethrin has little potential to leach into groundwater due to its strong tendency to bind to soil organic matter.

Bioaccumulative potential:

Deltamethrin is predicted to have limited potential to bioaccumulate in the environment.

Section 13: Disposal Considerations

Product Disposal:

On site disposal of the concentrated product is not acceptable. Ideally, the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities who hold periodic collections of unwanted chemicals (ChemClear®).

Container Disposal

Do not use this container for any other purpose. Triple or preferably pressure rinse empty containers before disposal or recycling. Add rinsings to spray tank. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500mm in a disposal pit specifically marked and set up for this purpose clear of water ways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

Section 14: Transport Information

UN Number:	3082
UN Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DELTAMETHRIN Suspension)
Class and subsidiary risk(s):	Class 9 (Miscellaneous Dangerous Goods)
Packing Group:	III
Special precautions for user:	None

Hazchem Code:	3Z
ADG Code:	According to AU01, Environmentally Hazardous Substances in packagings, IBC or any other receptacle not exceeding 500 kg or 500 L are not subject to the ADG Code.

Section 15: Regulatory Information

SUSDP:	5 - CAUTION
Commonwealth requirements:	None
AgVet Code Act 1994:	Registered - 63673

Section 16: Other Information

Acronyms

AgVet Code Act 1994 – Agricultural and Veterinary Chemicals Code Act 1994

LD_{50} or LC_{50} – Estimated lethal dose / concentration to kill 50% of the population/sample.

EC_{50} – Estimated exposure concentration to kill 50% of the population/sample.

NOEL – No observable effect level.

NOEC – No observable effect concentration.

NIOSH - National Institute for Occupational Safety and Health (USA)

SUSMP - Standard for the Uniform Scheduling of Medicines and Poisons

References

IUPAC Agrochemical Information: Deltamethrin http://sitem.herts.ac.uk/aeru/iupac/205.htm

United States Environmental Protection Agency: Deltamethrin. Human Health Assessment Scoping Document in Support of Registration Review http://www.epa.gov/oppfead1/endanger/litstatus/effects/redleg-frog/2013/deltamethrin/appendix-j.pdf

EFSA Scientific Opinion Potential developmental neurotoxicity of deltamethrin 1 Scientific Opinion of the Panel on Plant Protection Products and their Residues (PPR). http://www.efsa.europa.eu/en/efsajournal/doc/921.pdf

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