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MATERIAL SAFETY DATA SHEET
DELTAMETHRIN 2.5% EC

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

Identification of the substance	:	Deltamethrin 2.5% EC
Use of the substance	:	Insecticide
Manufacturer/supplier	:	Tagros Chemicals India Limited
Address	:	Tagros Chemicals India Ltd. "Jhaver Centre", Rajah Annamalai Building, IV Floor, 72, Marshalls Road, Egmore, Chennai-600 008, India
Emergency telephone number	:	+91-44-42007400
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2. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS: EMERGENCY OVERVIEW

Eyes	:	Irritating to the eyes on contact. Vapours, fumes or spray mist may cause irritation.
Skin	:	May cause transient burning sensation and itching by skin contact.
Ingestion	:	Harmful if swallowed, may cause abdominal pain, convulsions, vomiting, unconsciousness, headache and nausea if ingested.
Inhalation	:	Avoid inhalation of spray mist. Toxin may be absorbed on inhalation; irritating to the nasal membranes and respiratory tract.
Environment	:	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS No.	EC No.	Classification	Con. % w/w
Deltamethrin (ISO), (<i>S</i>)- α -cyano-3-phenoxybenzyl (1 <i>R</i> ,3 <i>R</i>)-3-(2,2-dibromovinyl)-2,2- dimethyl-cyclo-propane carboxylate	52918-63-5	258-256-6	T; R23/25 N; R50-53	2.5
Others	---	---	----	97.5

4. FIRST AID MEASURES

Contact with eyes	: Wash with copious amount of water. Avoid exposing affected eyes to bright light. Seek medical advice and show the container or this material safety data sheet.
Contact with skin	: Remove contaminated clothing and clean the affected skin area. First, soak up any liquid remaining on the skin with readily disposable material (e.g., talcum powder or absorbent cloth or paper); wash the affected area with warm water and alkaline soap. If irritation persists, consult doctor.
Ingestion	: If the material was swallowed and signs of toxicity are severe, induce vomiting. In the event of collapse, apply artificial respiration. Keep in mind that if mouth-to-mouth resuscitation is used, vomit may contain toxic amounts of Deltamethrin. Keep the person calm and comfortable and obtain medical assistance as soon as possible.
Inhalation	: If inhaled, remove to fresh air and keep at rest. Obtain medical aid if required.

5. FIRE FIGHTING MEASURES

Flash point	: >45 ⁰ C
Extinguishing media	: If product is involved in a fire, use water spray, foam, dry powder, carbon dioxide or sand.
Special exposure hazards	: Thermal decomposition products may emit toxic fumes of hydrogen cyanide and oxides of carbon and nitrogen.

Protective equipment for fire-fighting

: Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Fire fighting guidance

: Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

: Avoid contact with spilled material or contaminated surfaces. If ordinary clothing becomes contaminated, remove it immediately. When dealing with the spillage do not eat, drink or smoke and wear personal protective clothing as detailed in section 8.

Environmental precautions

: Keep people and animals away. Prevent entry into drains, sewers and watercourses.

Methods for cleaning up

: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

7. HANDLING AND STORAGE

Handling

: Wear chemically impervious gloves such as neoprene or nitrile. Wear safety glasses, goggles or face shield. Mechanical ventilation should be used when handling this product in enclosed spaces. Read and observe all precautions and instructions on the label.

Storage

: Store in original containers, upright and closed. Store in areas that are cool, dry and well ventilated. Store away from seeds, fertilizers and animal feed stuff.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limit value	: ADI: 0.01 mg/kg bw (JMPR)
Engineering controls	: Mechanical ventilation should be used when handling this product in closed spaces.
Respiratory protection	: When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations.
Hand protection	: Wear chemical resistant nitrile gloves.
Eye protection	: Wear safety goggles with imperforated side shield and face shield.
Skin protection	: Avoid contact with skin. Wear apron, boots and full protective suit.
Environmental exposure controls	: Keep away from food, drink and animal feed stuff. This material and its container must be disposed off as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheet.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid
Color	: Yellow
Odour	: Aromatic
Molecular Weight	: 505.2 (Deltamethrin)
pH	: 4.5 to 7.5
Persistent foam	: Maximum: 50 ml after 1 min
Relative density	: Approx 0.89 g/cm ³
Solubility in water	: Emulsify in water
Partition coefficient	: log P K_{OW} = 5.96 (Deltamethrin)

10. STABILITY AND REACTIVITY

Stability	: Stable at normal condition.
Conditions to avoid	: Avoid excessive heat and flame
Materials to avoid	: Strong oxidizing & alkaline agents.
Incompatibility	: Deltamethrin is incompatible with iron and iron alloys.

11. TOXICOLOGICAL INFORMATION

Acute toxicity	
Rat LD₅₀ oral, Rats	: 354.78 mg/kg bw
Rat LD₅₀ dermal, Rats	: >2000 mg/kg bw
Rat LC₅₀ inhalation, Rats	: 2.15 mg/l
Skin irritation	: Non-irritant to skin of rabbits
Eye irritation	: Mild-irritant to mucous membrane of rabbits
Skin sensitization	: Non-sensitiser to skin of Guinea pigs
Long term studies	
Carcinogenicity	: Non-carcinogenic in rat and mice
Mutagenicity	: Non-mutagenic
Reproductive toxicity	: Non-reprotoxic and teratogenic

12. ECOLOGICAL INFORMATION

Ecotoxicity

Fish, <i>Labeo rohita</i>	: LC ₅₀ (96 h): 4.05 mg/l
<i>Daphnia magna</i>	: EC ₅₀ (24 h) 4.15 µg/l (Deltamethrin)
Algae, <i>Chlorella vulgaris</i>	: EC ₅₀ : 22.77 µg/ml (Deltamethrin)
Bees, <i>Apis indica</i>	: LD ₅₀ : 0.52 ppm (Deltamethrin)
Earthworms, <i>Lampito mauritii</i>	LD ₅₀ :> 1000 mg/kg dry soil weight (Deltamethrin)
Birds, Japanese Quails	LD ₅₀ : > 5000 ppm (Deltamethrin)
Mobility	: Deltamethrin is classified as a low-mobility to immobile compound in soils.
Persistence and degradability	: Deltamethrin is not persistent in the environment. It is degraded by soil microorganisms and does not leave residues in the environment.

13. DISPOSAL CONSIDERATIONS

Product disposal	: Do not empty into drains or waterways. Disposal of product would usually be by incineration in an appropriate licensed commercial incinerator. Advice may be obtained from local waste regulation authorities.
Container disposal	: Puncture container to avoid re-use. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by local authorities, by burning. If burned, stay out of smoke. Follow advice on product label and/or leaflet.

14. TRANSPORT INFORMATION

UN number	: 3351
UN class	: 6.1
UN packaging group	: III
Proper Shipping Name	: PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE
Additional information	: Deltamethrin designated as marine pollutant.

15. REGULATORY INFORMATION

Classification	: Xn: Harmful N: Dangerous for the environment
Risk Phrases	: R10: Flammable R20/22: Harmful by inhalation and if swallowed. R37/38: Irritating to respiratory system and skin. R25: Toxic if swallowed R41: Risk of serious damage to eyes. R50/53: Very toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment. R65: Harmful: may cause lung damage if swallowed.
Safety Phrases	: S (1/2): Keep locked up and out of the reach of children 20/21: When using, do not eat, drink or smoke. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice S35: This material and its container must be disposed of in a safe way. S39: Wear eye/face protection. S60: This material and its container must be disposed of as hazardous waste. S61: Avoid release to the environment. Refer to special instructions/safety data sheets.
Reference regulation	: Regulation (EC) No 1907/2006

16. OTHER INFORMATION

MSDS first issued	: 18 th June 2002
MSDS data revised	: 11 th August 2010

DISCLAIMER

The above information is intended to give general health and safety guidance on the storage and transport of the substance or product to which it relates. It is not intended to apply to the substance or product for which purposes the substance or product label and any appropriate technical usage literature available should be consulted and any relevant licenses, consents or approvals complied with. The requirement or recommendation of any relevant site or working procedure, system or policy in force or arising from any risk assessment involving the substance or product should take precedence over any of the guidance contained in this safety data sheet where there is a difference in the information given. The information provided in this safety data sheet is accurate at the date of publication and will be updated as and when appropriate. No liability will be accepted for any injury loss or damage resulting from any failure to take account of information or advice contained in this safety data sheet.