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**PRODUCT: DELTAMETHRIN TECHNICAL**

**SECTION 1: Identification of the substance or mixture and of the company/undertaking**

- 1.1 Product identifier : Deltamethrin (BSI, draft E-ISO); deltaméthrine ((/ draft F-ISO)
- 1.2 Relevant identified uses of the substance or mixture and uses advised against : Insecticide
- 1.3 Details of the supplier of the safety data sheet : Tagros Chemicals India Ltd.  
"Jhaver Centre", Rajah Annamalai Building,  
IV Floor, 72, Marshalls Road,  
Egmore, Chennai-600 008, India  
Telephone number: +91-44-42007400  
E-mail: info@tagros.com
- 1.4 Emergency telephone number : +91-4142-239373 Ext. 151

**SECTION 2: Hazards identification**

- 2.1 Classification of the substance or mixture : Classification as per Directives 67/548/EEC:  
T; R23/25  
N; R50-53
- Classification as per Regulation (EC) No 1272/2008:  
Acute Tox. 3 \*, H331  
Acute Tox. 3 \*, H301  
Aquatic Acute 1, H400  
Aquatic Chronic 1, H410
- 2.2 Label elements
- Pictogram, Signal Word Code(s) : GHS06  GHS09 
- Dgr
- Hazard statement Code(s) : H331: Toxic if inhaled.  
H301: Toxic if swallowed.  
H410: Very toxic to aquatic life with long lasting effects.
- Precautionary Statements : P264: Wash hands thoroughly after handling.  
P270: Do not eat, drink or smoke when using this

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------------------------------------	------------------------	-------------------------------------	---------------------------------------

**PRODUCT: DELTAMETHRIN TECHNICAL**

product.  
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
P330: Rinse mouth.  
P405: Store locked up.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.  
P271: Use only outdoors or in a well-ventilated area.  
P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P311: Call a POISON CENTER or doctor/physician.  
P321: Specific treatment-treat symptomatically.  
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.  
P405: Store locked up.  
P273: Avoid release to the environment.  
P391: Collect spillage.  
P501: Dispose of contents/container in accordance with local/regional/national/regulation.

2.3 Other hazards : Very toxic to aquatic life with long lasting effects. Does not meet the criteria for vPvB in accordance with Annex XIII of REACH.

**SECTION 3: Composition/information on ingredients**

3.1 Substances

<b>Chemical name</b>	<b>CAS No/ EC No</b>	<b>Index No.</b>	<b>Classification (Directives 67/548/EEC)</b>	<b>Classification (Regulation (EC) No 1272/2008)</b>	<b>Con. % w/w</b>
Deltamethrin, (S)- $\alpha$ -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	607-319- 00-X	T; R23/25 N; R50-53	Acute Tox. 3 *, H331 Acute Tox. 3 *, H301 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	98.0 (min)

**SECTION 4: First aid measures**

4.1 Description of first aid measures : IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Keep the person calm and comfortable. Rinse mouth.  
IF INHALED: Remove victim to fresh air and keep

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------------------------------------	------------------------	-------------------------------------	---------------------------------------

**PRODUCT: DELTAMETHRIN TECHNICAL**

at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician.  
IF EYE CONTACT, immediately flush with plenty of water at least for 15 minutes.  
IF ON SKIN: Wash with plenty of soap and water.

4.2 Most important symptoms and effects, both acute and delayed : Based on animal studies, these may include excessive salivation, nausea and vomiting, shortness of breath and laboured breathing, coarse tremors, hypersensitivity to external stimuli and general weakness, a burning or itching sensation of the face and/or shoulders, hypotension and slow heart rate. These may be followed by hypertension, increased heart rate and convulsive muscle contractions.

4.3 Indication of any immediate medical attention and special treatment needed : The person should stop work immediately, 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. For eye contamination, wash with copious amounts of 4% sodium bicarbonate or water. Avoid exposing affected skin or eyes to bright light. If the material was swallowed and signs of toxicity are severe, induce vomiting if person is conscious and aspiration of vomit can be avoided. 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.

**SECTION 5: Firefighting measures**

5.1 Extinguishing media : If product is involved in a fire, use water spray, foam, dry powder, carbon dioxide or sand. Keep nearby containers and equipment cool with a water stream.

5.2 Special hazards arising from the substance or mixture : May give off toxic fumes if heated to decomposition. Do not breathe fumes. Wear self contained breathing apparatus.

<b>First issued:</b> <b>18/06/2002</b>	<b>Revision:</b> <b>06</b>	<b>Revision date:</b> <b>07/01/2015</b>	<b>Last review date</b> <b>12-01-2016</b>
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**PRODUCT: DELTAMETHRIN TECHNICAL**

- 5.3 Advice for firefighters : Whenever this product involved in a major fire, firefighters to wear boots, overalls, gloves, eye and face protection and breathing apparatus. Keep containers cool with water spray. Deltamethrin is toxic to fish and water should be used only to cool the unaffected stock.

**SECTION 6: Accidental release measures**

- 6.1 Personal precautions, protective equipment and emergency procedures : Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Remove ignition sources and need to evacuate the danger area or to consult an expert. When dealing with a spillage do not eat, drink or smoke.

- 6.2 Environmental precautions : Do not discharge into the drains/surface water/groundwater.

- 6.3 Methods and material for containment and cleaning up : Keep spectators away from leaking or spilled product. Prohibit smoking and the use of naked flames in the immediate vicinity. Transfer any product remaining in damaged or leaking containers into a clean, empty drum, and label the drum.

Absorb spillage and cover contaminated areas with lime, damp sawdust, and, earth, or other absorbent material and place in a secure container for safe disposal. Contain a large spillage by a barrier of earth or sandbags. Prevent from spreading to other cargo, vegetation, or waterways. Clean contaminated floors and objects thoroughly with plenty of water, observing environmental regulations.

- 6.4 Reference to other sections : Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

**SECTION 7: Handling and storage**

- 7.1 Precautions for safe handling : Wear full protective clothing by those handling concentrates. Adequate washing facilities should be available at all times and should be close to

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------------------------------------	------------------------	-------------------------------------	---------------------------------------

**PRODUCT: DELTAMETHRIN TECHNICAL**

- site of handling. Eating, drinking and smoking should be prohibited during handling. Wash hands after use and to remove contaminated clothing and protective equipment before entering eating areas.
- 7.2 Conditions for safe storage, including any incompatibilities : It should be stored in clearly labelled rigid and leak proof containers and away from containers of food and drink. Storage should be under lock and key and secure from access by children and other unauthorized persons. Store in a well-ventilated place. Do not store together with oxidizing agents & strong alkalies.
- 7.3 Specific end use(s) : When opening a container and mixing, protective impermeable boots, clean overalls impermeable gloves, eye protection and a respirator should be worn. Avoid contact to mouth and eyes. Before eating, drinking or smoking, hands and other exposed skin should be thoroughly washed with alkaline soap.

**SECTION 8: Exposure controls/personal protection**

- 8.1 Control parameters
- Occupational exposure limit : Exposure limit values are not available.
- DNEL and PNEC values : Not available
- 8.2 Exposure controls
- 8.2.1 Appropriate engineering controls : Mechanical ventilation should be used when handling this product in closed spaces.
- 8.2.2 Individual protection measures, such as personal protective equipment
- General precautions : Do not inhale dust.
- Eye/face protection : Wear safety goggles with imperforated side shield and face shield.
- Skin protection : Avoid contact with skin. Wear apron, boots and full protective suit.
- Respiratory protection : Use respiratory protection in case of insufficient

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------------------------------------	------------------------	-------------------------------------	---------------------------------------

**PRODUCT: DELTAMETHRIN TECHNICAL**

exhaust ventilation or prolonged exposure.

Thermal hazards : Whenever this product involved in a major fire, firefighters to wear boots, overalls, gloves, eye and face protection and breathing apparatus.

8.2.3 Environmental exposure controls : Keep away from food, drink and animal feed stuff. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheet.

**SECTION 9: Physical and chemical properties**

9.1 Information on basic physical and chemical properties

Appearance : Off-white Powder

Odour : Odorless

Odour threshold : Not available

pH : 4.59, CV = 0.6% (ca 20°C) (1% dispersion)

Melting point/freezing point : 101°C

Initial boiling point and boiling range : Not applicable

Flash point : Not available

Evaporation rate : Not available

Flammability (solid, gas) : Non-flammable

Upper/lower flammability or explosive limits : Non-explosive

Vapour pressure :  $<5.9 \times 10^{-4}$  Pa (ca 25°C)

Relative density : 1.5868 (CV = 0.4%)

Solubility(ies) : Water: pH 4 Buffer < 3.24 ng/mL at 20°C

Partition coefficient: n-octanol/water : log P  $K_{ow}$  = 5.96

Auto-ignition temperature : Not available

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**PRODUCT: DELTAMETHRIN TECHNICAL**

- Decomposition temperature : Not available
- Viscosity : Not available
- Explosive properties : Non-explosive
- Oxidising properties : Non-oxidizer
- 9.2 Other information : Does not dissociate in water

**SECTION 10: Stability and reactivity**

- 10.1 Reactivity : Unstable in alkaline media.
- 10.2 Chemical stability : Stable for two years at ambient conditions.
- 10.3 Possibility of hazardous reactions : Reactions with strong alkalis. Incompatible with oxidizing materials.
- 10.4 Conditions to avoid : Avoid excessive heat and flame.
- 10.5 Incompatible materials : Strong alkaline materials.
- 10.6 Hazardous decomposition products : When handled and stored appropriately, no dangerous decomposition products are known.

**SECTION 11: Toxicological information**

- 11.1 Information on toxicological effects
  - Acute toxicity, oral, dermal, inhalation : Oral LD<sub>50</sub>: > 50-300 mg/kg bw (m) (Rats)  
Dermal LD<sub>50</sub>: >2000 mg/kg bw (Rats)
  - skin corrosion/irritation : Non-irritant to skin of rabbits
  - serious eye damage/irritation : Non-irritant to eye of rabbits
  - respiratory or skin sensitisation : Non-sensitiser to skin of Guinea pigs
  - germ cell mutagenicity : Non-mutagenic
  - Carcinogenicity : Non-carcinogenic
  - Reproductive toxicity : Non-reprotoxic and teratogenic

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------------------------------------	------------------------	-------------------------------------	---------------------------------------

**PRODUCT: DELTAMETHRIN TECHNICAL**

- STOT-single exposure : Not applicable
- STOT-repeated exposure : Not applicable
- Aspiration hazard : Chemical pneumonitis resulting from aspiration of the solvent into the lungs is a hazard that occurs when liquid formulations are used.

**SECTION 12: Ecological information**

- 12.1 Toxicity
  - Fish, *Poecilia reticulata* : LC<sub>50</sub> (96 h): 1.74 µg/l
  - Daphnia magna* : EC<sub>50</sub> (24 h) 4.15 µg/l
  - Algae, *Chlorella vulgaris* : EC<sub>50</sub>: 22.77 µg/ml
  - Bees, *Apis indica* : LD<sub>50</sub>: 0.52 ppm
  - Earthworms, *Lampito mauritii* : LD<sub>50</sub> :> 1000 mg/kg dry soil weight
  - Birds, Japanese Quails : LD<sub>50</sub>: > 5000 ppm
- 12.2 Persistence and degradability : In soil, undergoes microbial degradation within 1-2 weeks. K<sub>d</sub> 3790-30 000, K<sub>oc</sub> 4.6x·10<sup>5</sup> - 1.63x·10<sup>7</sup> cm<sup>3</sup>/g, confirms strong adsorption by soil colloids and no risk of leaching. DT<sub>50</sub> (lab., aerobic) 21-25 d, (anaerobic) 31-36 d. In field, DT<sub>50</sub> <23 d. Soil photolysis DT<sub>50</sub> 9 d.
- 12.3 Bioaccumulative potential : Pyrethroids have bioconcentration factors (BCFs) that are far lower than those predicted from the correlation between the K<sub>ow</sub> partition coefficient and BCF. The low accumulation can be attributed to metabolism by the fish and to the reduced bioavailability to fish of deltamethrin bound by dissolved organic carbon and suspended colloids.
- 12.4 Mobility in soil : According to the pesticide mobility classification system developed by Helling & Turner, deltamethrin is classified as a low-mobility to immobile compound in soils.
- 12.5 Results of PBT and vPvB assessment : Very toxic to aquatic life with long lasting effects.



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------------------------------------	------------------------	-------------------------------------	---------------------------------------

**PRODUCT: DELTAMETHRIN TECHNICAL**

Does not meet the criteria for vPvB in accordance with Annex XIII of REACH.

- 12.6 Other adverse effects : When used as recommended, it is unlikely that deltamethrin or its degradation products will reach levels of adverse environmental significance.

**SECTION 13: Disposal considerations**

- 13.1 Waste treatment methods

Product Disposal

Avoid exposure, if possible by the use of appropriate protective clothing and masks.

Waste that contains deltamethrin should be burnt in an appropriate high-temperature incinerator with effluent scrubbing. Where no incinerator is available, contaminated absorbents or surplus products should be decomposed by hydrolysis at pH 12 or above. Contact with a suitable hydrolysing agent is required to ensure degradation of the active ingredient to a safe level.

Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage to streams, watercourses, open waterways, ditches, fields with drainage systems, or to the catchment areas of boreholes, wells, springs, or ponds.

Package disposal

Decontaminate empty, damaged, or leaking containers with a 10% sodium carbonate solution added at the rate of at least 1 litre per 20-litre drum. Puncture containers to prevent reuse. Dispose of container in accordance with local regulation.

**SECTION 14: Transport information**

- 14.1 UN number : 3349
- 14.2 UN proper shipping name : PYRETHROID PESTICIDE, SOLID, TOXIC
- 14.3 Transport hazard class(es) : ADR: 6.1  
IMDG: 6.1

<b>First issued:</b> <b>18/06/2002</b>	<b>Revision:</b> <b>06</b>	<b>Revision date:</b> <b>07/01/2015</b>	<b>Last review date</b> <b>12-01-2016</b>
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**PRODUCT: DELTAMETHRIN TECHNICAL**

ICAO/IATA: 6.1  
RID: 6.1

- 14.4 Packing group : III
- 14.5 Environmental hazards : Deltamethrin designated as marine pollutant
- 14.6 Special precautions for user : Ensure that containers are sound and that labels are securely fixed and undamaged before dispatch. Do not load together with food and animal feed.
- 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code : Not relevant

**SECTION 15: Regulatory information**

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture : Deltamethrin has been classified under Dangerous substances Directive (67/548/EEC) & Regulation No 1272/2008.
- 15.2 Chemical safety assessment : Chemical safety assessment has been performed by World Health Organization for the International Programme on Chemical Safety.

**SECTION 16: Other information**

- 16.1 Indication of changes  
Changes have been made in all section.
- 16.2 Abbreviations and acronyms  
LD<sub>50</sub>: Lethal Dose, 50%  
LC<sub>50</sub>: Lethal Concentration, 50%  
STOT: Specific Target Organ Toxicity  
DNEL: Derived No Effect Level  
PNEC: Predicted No Effect Concentration  
ADR: International Carriage of Dangerous Goods by Road  
IMDG: International Maritime Dangerous Goods  
ICAO/IATA: International Civil Aviation Organization /International Airlines Travel Agent  
RID: International Carriage of Dangerous Goods by Rail
- 16.3 Key literature references and sources for data  
-Our study reports  
- World Health Organization for the International Programme on Chemical Safety.

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**PRODUCT: DELTAMETHRIN TECHNICAL**

-BCPC, Pesticide Manual

16.4 Text of R-phrases mentioned in Section 3:

23/25: Toxic by inhalation and if swallowed.

R50: Very toxic to aquatic organisms.

R53: May cause long-term adverse effects in the aquatic environment.

Text of the hazard statements mentioned in Section 3:

H331: Toxic if inhaled.

H301: Toxic if swallowed.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

16.5 **Training**

Training of workers in techniques to avoid contact with substance is essential.

16.6 **Liability**

The information provided in this safety data sheet is accurate at the date of publication and will be updated as and when appropriate. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.