Product Safety Data Sheet

1. Chemical product and company identification

1.1. Prepared Date : Jan . 20 . 2023

1.2. Product information : -

Trade name : Deltathrin- 25 E.C.

1.3. Information about manufacturer / supplier :

Saudi Delta Company for Chemical Industries
Riyadh – Saudi Arabia – 3rd Industrial City
Tel. 00966-11-2654533 Fax. 00966-11-2654532
P.O. Box 355809 Riyadh 11383 Saudi Arabia

2. Information on ingrediants

2.1. Chemical properties (Component substances)

The product is a mixture of one active ingrediant , emulsifiers , and solvent

- Deltamethrin : 2.5% w/v (Non-systemic insecticide with contact and stomach action. Fast acting)
- Emulsifiers : 5.5% w/v (Anionic / non- ionic type)
- Aromatic Solvent : Up to 100% v

2.1.1. Deltamethrin:-

- Common name : deltamethrin (BSI, draft E-ISO), deltamethrine ((f) draft F-ISO).
- IUPAC name : (S)-α-cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dibromovinyl)-2,2-=dimethylcyclopropanecarboxylate.
  Roth: (S)-α-cyano-3-phenoxybenzyl (IR)-cis-3-(2,2-dibromovinyl)-2m2-= dimethylcyclopropanecarboxylate.
- CAS RN : [52918-63-5]; [52820-00-5] ((RS)-(IR)-cis-isomer pair).
- Mol. Wt : 505.2
- Mol. Formula : $C_{22}H_{19}Br_2NO_3$
- Structural Formula:
- Form : Colourless crystals , - M.P. 100-102°C
- V.P. : <1.33 x 10^{-5} Pa (25°C). , - Bulk Density: 0.55 gm/cm^3 (25°C)
- Kow log P = 4.6 (25°C).

- Solubility : Water < 0.2 µg/l (25°C). In dioxane 900, cyclohexanone 750, dichloromethane 700, acetone 500, benzene 450, dimethyl sulfoxide 450, xylene 250, ehtanol 15, isopropanol 6 (all in g/l, 20°C).
- Stability : Extremely stable on exposure to air. Stable ≤ 190°C. Under u.v. irradiation and in sunlight, a cis-trans isomerisation, spliting of the ester bond, and loss of bromine occur. More stable in acidic than in alkaline media; DT_{50} 2.5 d (pH 9, 25°C)

2.1.2. Emulsifiers :

A combined anionic/nonionic emulsifiers specially intended for formulation of pesticide .

Composition :	15-30% calcium dodecyl benzenesulfonate . 10-20% n-Butanol . 30-60% polyalkyleneoxidederivative .
Appearance :	Clear yellow-brown liquid and cloudy yellow liquid
Density :	0.99-1.01 gm/ml (20 °C)
Flash point :	37 °C .
Pour point :	2-3 °C .
Viscosity :	1150 mPa s .
Solubility :	Soluble in Isopropanol , Octanol , water , and exylene in soluble in kerosene and mineral oil

2.1.3. Aromatic Solvent:

- Chemical Name : Trimethyl benzene
- Distillation range : 155-181
- Flash Point : 41°C.
- Aromatic content : 97%
- Density at 15°C : 0.877 gm/ml
- Refractive Index (25°C): 1.501
- Viscosity at 25°C : 0.81 m Pa.s

3. Hazard Identification

3.1. **Dangerous Substances**: Deltamethrin has alow mammalian toxicity.
3.2. Important Hazardous: Solvent may be present aspiration hazardous.
3.3. **Sings and Symptoms of over-exposure** :

Pyrethroids have generally low toxicity to mammals , forming the basis of their favorable selectivity . Although all pyrethroids are convulsants they can be divided into two major classes based on neurophysiological toxicological , and pharmacological effects in a variety of spicies .

The non cyano pyrethroids (type I) include the agents permethrin and tetramethrin and cause hyperactivity, tremor and predominantly clonic convulsions. And the pyrethroids containing ∝-cyano substitunet (type II) include the agents cypermethrin, tetramethrin , and fenvalerate have nerve effects and toxicological manifestations, and the signs of poisoning resemble those of pycrotoxinin and include salivation, hyperactivity , choreoathetosis , and clonic/tonic convulsions .

4. First aid Measures

Eyes : immediately flush for 15 minutes with large amount of water .
Skin : remove all contaminated clothing atonce ; thoroughly wash with soap and water

Ingestion : Don't induce vomiting or administer liquids .

Vomiting should be induced only under professional supervision. Keep patient prone and quiet . Only a physician should induce vomiting as first aid for this slightly toxic substance due to increased risk of chemical pneumonia or pulmonary edema caused by aspiration of the hydrocarbon solvent .

5. Fire Fighting Measures

5.1. Extinguishing media :

5.1.1. Suitable: Carbon dioxide, foam, water fog, dry chemical and halogenated agents.
5.1.2. Not to be used: Don't use water except in case important fire.
5.1.3. Protection against fire: Keep a way from sources of ignition.

6. Accidental Release Measures

6.1. ***Personal precautionary measures*** *:*

6.1.1. **Respiratory protection** : In case of insufficient ventilation weare apesticide respirator jointly approved by the local authorities .

6.1.2 **Protective gloves** : wear heavy duty , natural rubber gloves , or chemical resistant gloves such as Barrier laminate or Nitrile Rubber or. Neoprene rubber or viton .

6.1.3 **Eye protection** : wear safety goggles .

6.1.4. **Other protection** : wear water-proff pants , coat , hat , rubber boots or ruber overshoes.

6.2. Environmental Precaution *:* Stop any evertual leakage.

6.3. After spillage / leakage on soil: Liquid spillage should be damned off and pumped into containers; soak up remainder with absorbent material and dispose of in accordance with local regulations .

7. Handling and Storage

Don't apply when weather conditions favor drift from treated area . Don't contaminate

lakes , streams , ponds . When using don't eat , drink , or smoke . Don't breath spray .

Wash hands and exposed skin before meals and after work.

Wash out container thoroughly and dispose of safety . Store in original container in a cool , dry , well-ventilated , secure area out of reach of children and animals store in original container , tightly closed in a safe place .

8. Exposure controls , Personal Protections .

8.1. **Personal Protection**: Don't breath spray, after treatment, wash and change clothes prior anything else like eating, drinking, or smoking.

8.2. **Respiratory Protection** : Wear a suitable mask.

8.3. **Skin Protection** : Wear a suitable protective clothing mask.

8.4. **Eye Protection** : Wear eye, face protection.

8.5. **Ingestion** : Don't eat, drink, or smoke during application.

9. Physical and chemical properties

9.1. Shape : Liquid

9.2.	Colour	: Yellow
9.3.	Odour	: Aromatic
9.4.	Product Use	: Veterinary use .
9.5.	Melting point	: Not applicable
9.6.	Boiling point	: Not available
9.7.	Specific gravity (20^{o})	: 0.89
9.8.	Vapour pressure (mm Hg)	: Not available
9.9.	Viscosity (CPS) 25 ^{o}C	: 25
9.10.	Solubility in water (25°C)	: Forms white emulsion
9.11.	Flash point ^{o}C	: 40 ^{o}C
9.12.	pH (1% aq. Emul.) w/v	: 5.6
9.13.	Flammable limits	: Not available

10. Stability and Reactivity

10.1. **Hazardous Decomposition**: Deltathrin 25 EC is stable under normal conditions (25^{o}), stable in neutral and slightly acidic media , stable to U.V.

10.2. **Dangerous products of decomposition** : Non known .

11. Toxicological Information

For Technical : MAMMALIAN TOXICOLOGY

Reviews Pesticide residues in food – 1982. FAO plant production and protection paper 46, 1983. Pesticide residues in food: 1982 evaluations. FAO plant production and protection paper 49, 1983, Environmental Health Criteria 97 (WHO, 1990). **IARC** 53. Acute oral LD_{50} for rats ranges from 135->5000 mg/kg depending upon carrier and conditions of]

the study; for dogs > 300 mg/kg. **Acute oral** LD_{50} for formulations in rats:

1080 mg (of 15 g/l EC)/kg; 535 mg (of 25 g/l EC)/kg; > 5000 mg (of 5 g/l

UL)/kg; > 16000 mg (of 25 g/kg WP) / kg; > 40000 mg (of 25 g/l SC) / kg. **Skin and eye** Acute percutaneous LD_{50} for rats and rabbits > 2000 mg/kg. Non-irritating to skin; mild eye irritant (rabbits). **Inhalation** LC_{50}

(4 h) for rats 2.2 mg/l air; (1 h)> 4.6 mg/1 air (micronised).

NOEL (2y) for mice 12, rats 2.1, dogs 1 mg/kg b.w. **ADI** (JMPR) 0.01 mg/kg b.w. [1982]. **Toxicity class** WHO II; EPA category II. **Other** Non-

muagenic and nonteratogenic (mice, rats rabbits).

12. Ecological Data

For Technical : ECOTOXICOLOGY

Birds Acute oral LD_{50} for mallard ducks > 4640 mg/kg. Eight-day dietary

LC_{50} for mallard ducks > 8039, quail > 5620 mg/kg diet. NOEL for reproduction for mallard ducks > 70, bobwhite quail > 55 mg/kg daily. ***Fish*** Toxic to fish under laboratory conditions; LC_{50} (96 h) for rainbow trout 0.91, bluegill sunfish 1.4 µg/l. Not toxic to fish under natural conditions. ***Bees*** Toxic to bees, LD_{50} 50 ng/bee. Low LD_{50} and LC_{50}.

13. Disposal Considerations

13.1. Pesticides Disposal

Pesticide wastes are toxic . Improper disposal of excess pesticide , spray mixture , or rinsate is a violation of Federal law . If these wastes cannot be disposed of use according to label insturctions contact .
Environmental Control Agency , or the Hazardous Waste representative at the nearest EPA Regional Office for guidance .

13.2. Container disposal

13.2.1. Metal containers : Triple rinse (or equivalent) . Then offer for recycling or reconditioning , or puncture and dispose of in a sanitary landfill , or by other procedures approved by local authorities. Do not cut or weld metal containers .

13.2.2. Plastic containers : Triple rinse (or equivalent) . Then offer for ercycling or reconditioning , or puncture and dispose of in a sanitary landfill , or incineration , or , if allowed by authorities , by burning . If burned, stay out of smoke .

13.2.3. Returnable / Refillable Sealed Containers : Don't rins container. Do not empty remaining formulated product . Do not break seals . Return intact to point of purchase .

14. Transport Information

UN NO. : 3352
IMO CLASS : 3
UN PROPERSHIPPING NAME : PYRETHROID, PESTICIDES,LIQUID,TOXIC
GGVE/GGVS : 3 IMDG-Code :3 RID/ADR : 3
UN PACKING GROUP : III IATA/ICAO : 3

15. Regulatory Information

15.1. Toxicity Classifications : Moderately Hazardous
Warning Symbol : X

15.2. R-Phrase

R21/22 : Harmful in contact with skin and if swallowed
R36/38 : Irritating to eyes and skin .
R10 : Flammable
R20 : Harmful by inhalation

15.3 S-Phrase

S22 : Don't breath dust .
S26 : In case of contact with eyes , rinse immediately with plenty of water and seek medical advice .
S37/39 : Wear suitable gloves and eye / face protection ..
S25 : Avoid contact with eyes .

16. Other Information

Note to Physician :

Like the natural pyethrins , the synthetic derivative is expected to have relatively minor toxicity in humans ; in fact , any significant acute toxic effects are more likely from a carrier hydrocarbon solvent . Consequently , induction of vomiting may increase th likelihood of the most important toxic potential , chemical pneumonia , and so should either be avoided or done only under medical supervision . Ingestion of a large amount calls for gastric lavage , with care (Trendelenburg position , suction available , cuffed endotracheal tube if patient is unconscious) to avoid intrapulmonary as-poration . A saline cathartic (sodium or magnesium sulfate) , 15-30 gm dissolved in water should be given , as should 15-30 gm activated charcoal as a slurry in water . Digestible fats , oils or alcohol may increase absorption and so should . Skin contact (vapor or powder) may be followed by transient tingling or numbness , usually of the face , but this subsides without treatment .