



## Identification of the substance or mixture and of the company/undertaking

### **Product identifier.**

Permethrin (BSI, E-ISO, ANSI, ESA, BAN); perméthrine (F-ISO)

### **Relevant identified uses of the substance or mixture and uses advised against**

Insecticide

### **Details of the supplier of the safety data sheet.**

SPARCHEM

159, Ashoka Shopping Centre, 2nd Flr.,

L.T. Marg, Mumbai - 400001,

Telephone number: 0091- 22-22642642

E-mail: response@sparchem.com

### **Emergency telephone number**

0091- 22-22642642

## Hazards identification

### **Classification of the substance or mixture**

#### **Classification as per Directives 67/548/EEC:**

Xn; R20/22

R43

N; R50-53

**Classification as per Regulation (EC) No 1272/2008:**

Acute Tox. 4 \*, H332  
Acute Tox. 4 \*, H302  
Skin Sens. 1, H317  
Aquatic Acute 1, H400  
Aquatic Chronic 1, H410

**Label elements - Pictogram, Signal Word Code(s)**

GHS07  
GHS09

**Hazard statement Code(s)**

H332: Harmful if inhaled.  
H302: Harmful if swallowed.  
H335: May cause respiratory irritation.  
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 product.  
P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.  
P330: Rinse mouth.  
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.  
P272: Contaminated work clothing should not be allowed out of the workplace.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.  
P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.  
P321: Specific treatment (see ...on this label).  
P363: Wash contaminated clothing before reuse.  
P273: Avoid release to the environment.  
P391: Collect spillage.  
P501: Dispose of contents/container according to local rules & regulations.

**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.

## Composition/information on ingredients

Chemical name	CAS No/ EC No	Index No.	Classification (Directives 67/548/EEC)	Classification (Regulation (EC) No 1272/2008)	Con. % w/w
Permethrin (ISO) <i>m</i> -phenoxybenzyl3-(2,2- dichlorovinyl)-2,2- dimethylcyclopropanecarboxylate (Cis:trans ratio: 50:50)	52645-53-1/ 258-067-9	613-058- 00-2	Xn; R20/22 R43 N; R50-53	Acute Tox. 4 *, H332 Acute Tox. 4 *, H302 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	94.0 (min)

## First aid measures

### **Description of first aid measures**

IF SWALLOWED, Call a POISON CENTRE or doctor/physician if you feel unwell. Keep the person calm and comfortable. Rinse mouth.

IF EYE CONTACT, immediately flush with plenty of water at least for 15 minutes.

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

### **Most important symptoms and effects, both acute and delayed**

Permethrin is a synthetic pyrethroid insecticide. There have been no incidents of poisoning reported in the general population or from occupational exposure. Experimental studies in animals suggest that after massive over-exposure or accidental ingestion, neurological signs and symptoms, such as ataxia, tremors, and convulsions, could occur.

### **Indication of any immediate medical attention and special treatment needed**

There are no specific antidotes, treatment must be symptomatic. Keep the patient warm and calm. In cases of severe intoxication, therapy should include a sedative and anticonvulsant (e.g. barbiturates, diazepam, paraldehyde, etc.). If a large quantity of permethrin has been swallowed, unless the patient is unconscious or vomiting, gastric lavage should be performed using a 5% sodium bicarbonate solution, followed by powdered activated charcoal.

## Firefighting measures

### **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.

### **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.

### **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. Cypermethrin is toxic to fish and water should be used only to cool unaffected stock.

## Accidental release measures

### **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.

### **Environmental precautions**

Do not discharge into the drains/surface water/groundwater.

### **Methods and material for containment and cleaning up**

Do not contaminate waters and sewers. Soak up with absorptive material such as sand, soil, diatomaceous earth, etc. Prevent material from spreading, e.g. by damming in with absorptive material. Collect material in specially marked, tightly closing containers. Spilled product cannot be used further and must be disposed of. Clean contaminated floors and objects thoroughly with plenty of water, observing environmental regulations.

### **Reference to other sections**

Information regarding personal protective equipment, see section 8.

Information regarding waste disposal, see section 13.

## Handling and storage

### **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 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.

### **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 alkalis.

### **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.

## Exposure controls/personal protection

### **Control parameters**

#### **Occupational exposure limit**

Exposure limit values are not available.

DNEL and PNEC values

PNEC water = 0.00047 mg a.i./L

PNEC micro-organisms (STP) = 100 mg a.i./L (nominal)

PNEC sed of 0.001 mg kg<sup>-1</sup>

DNEL: Not available

### **Exposure controls**

#### **Appropriate engineering controls**

Mechanical ventilation should be used when handling this product in closed spaces.

### **Individual protection measures, such as personal protective equipment**

#### **General precautions**

Do not inhale vapours.

#### **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 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.

### **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.

## **Physical and chemical properties**

### **Information on basic physical and chemical properties**

#### **Appearance**

Greyish White, Viscous liquid

#### **Odour**

Slight Aniseed

#### **Odour threshold**

Not available

#### **PH**

6.54, CV = 0.3% (ca 200C)

#### **Melting point/freezing point**

33.5-36.0 OC

#### **Initial boiling point and boiling range**

305OC

#### **Flash point**

>100OC

#### **Evaporation rate**

Not available

#### **Flammability (solid, gas)**

Non-relevant

#### **Upper/lower flammability or explosive limits**

Not available

#### **Vapour pressure**

1.7 x 10<sup>-2</sup> Pa (ca 250C)

#### **Relative density**

1.2244 (CV = 0.7%)

#### **Solubility(ies)**

Water: pH 4 Buffer = 0.04 µg/mL @ 20°C, Acetone >1000 mg/mL, n-Octanol = 583.4mg/mL, o-Xylene = 681.1 mg/mL @ 20°C.

#### **Partition coefficient: n-octanol/water**

cis-Permethrin Log POW = 6.42

trans-Permethrin Log POW = 5.89

#### **Auto-ignition temperature**

Not available

**Decomposition temperature**

Not available

**Viscosity**

Not available

**Explosive properties**

Non-explosive

**Oxidising properties**

Non-oxidizer

**Other information**

Does not dissociate in water

## Stability and reactivity

**Reactivity**

Hydrolysed under alkaline conditions.

**Chemical stability**

Stable for two years at ambient conditions.

**Possibility of hazardous reactions**

Reactions with strong alkalis. Incompatible with oxidizing materials.

**Conditions to avoid**

Avoid excessive heat and flame.

**Incompatible materials**

Alkaline materials.

**Hazardous decomposition products**

When handled and stored appropriately, no dangerous decomposition products are known.

## Toxicological information

**Information on toxicological effects Acute toxicity, oral, dermal, inhalation**

Oral LD50: >300-2000 mg/kg bw (Rats)

Dermal LD50: >2000 mg/kg bw (Rats)

Inhalation LC50 >0.24 mg/l (Rats)

**Skin Corrosion/Irritation**

Non-irritant to skin of rabbits

**serious eye damage/irritation**

Mild-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

**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.

## Ecological information

**Toxicity****Guppy, *Poecilia reticulata*, 96 hours**

LC50 : 0.0089 mg/l

**Common Carp, *Cyprinus carpio*, 96 h**

LC50 : 0.145 mg/l

***Daphnia magna*, 24 hours**

EC50: 0.020 mg/l

**Algae, *Scenedesmus subspicatus*, 72 h**

EbC501: >0.011 mg/l, ErC502: >0.011 mg/l

**Earthworm, *Lampito mauritii***

LC50 :>1200 mg/kg

**Activated sewage sludge, 3 hours**

EC50:>1000 mg/l

**Persistence and degradability**

Permethrin disappears rapidly from the environment: in 6 to 24 h from ponds and streams; in 7 days from pond sediment; and in 58 days from foliage and soil in forests. Thirty per cent of the compound was lost within 1 week from cotton leaves in a field.

In water and on soil surfaces, permethrin is photodegraded by sunlight. Ester cleavage and cis-trans interconversion are, as with plants, the major reactions.

**Bioaccumulative potential**

Permethrin is readily taken up by aquatic organisms: bio-concentration factors range from 43 to 750 for various organisms. In all the aquatic organisms studied, absorbed permethrin is also rapidly lost on transfer to clean water. There is no bioaccumulation in birds. Therefore, the compound, in practice, can be regarded as having no tendency to bioaccumulate.

### **Mobility in soil**

Leaching potential of Permethrin and its degradates showed that very little downward movement occurs in soil.

### **Results of PBT and vPvB assessment**

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

### **Other adverse effects**

It is unlikely that permethrin or its degradation products will attain levels of environmental significance provided that recommended application rates are used. Under laboratory conditions permethrin is highly toxic to fish, aquatic invertebrates, and honey bees. However, lasting adverse effects are not likely to occur under field conditions provided it is used as recommended.

## **Disposal considerations**

### **Waste treatment methods**

#### **Product Disposal**

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

Absorb spillage with lime, damp sawdust, sand, or earth and dispose of safely (see below). If spillage is large, contain it by building a barrier of earth or sandbags.

Waste containing cypermethrin should be burnt in a proper 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. Dispose of product in accordance with local regulation.

Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into streams, water-courses, open waterways, ditches, fields with drainage systems, or 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 empty containers in an incinerator approved for chemicals. Dispose of container in accordance with local regulation.

## Transport information

**UN number**

3352

**UN proper shipping name**

PYRETHROID PESTICIDE, LIQUID, TOXIC

**Transport hazard class(es)**

ADR: 6.1

IMDG: 6.1

ICAO/IATA: 6.1

RID: 6.1

**Packing group**

III

**Environmental hazards**

Permethrin designated as marine pollutant.

**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.

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not relevant

## Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

Permethrin has been classified under Dangerous substances Directive (67/548/EEC) & Regulation No 1272/2008.

**Chemical safety assessment**

Chemical safety assessment has been performed by World Health Organization for the International Programme on Chemical Safety.

## Other information

**Indication of changes**

Changes have been made in all section.

**Abbreviations and acronyms**

LD50: Lethal Dose, 50%

LC50: 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

### **Key literature references and sources for data**

- Our study reports
- World Health Organization for the International Programme on Chemical Safety.
- BCPC, Pesticide Manual
- Document I, Evaluation report according to Directive 98/8/EC)

### **Text of R-phrases mentioned in Section 3:**

R20/22: Harmful by inhalation and if swallowed

R37: Irritating to respiratory system

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

### **Text of the hazard statements mentioned in Section 3:**

H332: Harmful if inhaled.

H302: Harmful if swallowed.

H335: May cause respiratory irritation.

H400: Very toxic to aquatic life.

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

### **Training**

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

### **Liability**

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