

**Material Safety Data Sheet (MSDS)**  
**Tennin 260 EC**

**IDENTIFICATION OF THE SUPPLIER:**

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**PRODUCT IDENTIFICATION:**

**Common name:** Permethrin 9.75% + Tetramethrin 1.5% + PBO 11.25% w/v

**Trade Name:** Tennin 260 EC

**Chemical name:**

permethrin: (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate

tetramethrin: (1,3,4,5,6,7-hexahydro-1,3-dioxo-2H-isoindol-2-yl)methyl 2,2-dimethyl-3-(2-methyl-1-propenyl)cyclopropanecarboxylate

P.B.O: 5-[2-(2-butoxyethoxy)ethoxymethyl]-6-propyl-1,3-benzodioxole; 2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether

**Empirical formula:**

Permethrin: C<sub>21</sub>H<sub>20</sub>Cl<sub>2</sub>O<sub>3</sub>

Tetramethrin: C<sub>19</sub>H<sub>25</sub>NO<sub>4</sub>

PBO: C<sub>19</sub>H<sub>30</sub>O<sub>5</sub>

**Molecular Weight:**

Permethrin: 391.3

Tetramethrin: 331.4

PBO: 338.4

**PRODUCT COMPOSITION:**

<b>Active ingredient:</b>	<b>% w/v</b>	<b>CAS#</b>
Permethrin	9.75%	[51-03-6]
Tetramethrin	1.5%	[7696-12-0]
P.B.O	11.25%	[52645-53-1]

**Inert Ingredients:**

Emulsifier	8% w/v	--
Solvent	up to 100% w/v	--



## HAZARDS IDENTIFICATION:

### Main hazard

**Toxicity class: EPA (Formulation ) IV**

**Flammability:** Flammable

**Eye contact:** Moderate irritant

**Skin contact:** Moderate irritant.

**Oral :** Tetramethrin > 5000 mg/kg Permethrin 6000 mg/kg,P.B.O  
>7500mg/kg

**Inhalation:** Tetramethrin >2.73 mg/L,Permethrin >685 mg/ L, P.B.O >5.9  
mg/L

## FIRST-AID MEASURES:

Obtain the MSDS, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

### Eye:

Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist.

### Skin:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

### Ingestion:

If swallowed, seek medical advice immediately and show this container or label.

Do not induce vomiting.

### Inhalation:

Prolonged excessive exposure may cause adverse effects. May cause respiratory irritation and central nervous system depression.

Move person to fresh air. If not breathing, call an ambulance, and then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc).

Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

**Advice to physician:** There is no specific antidote



## **FIRE-FIGHTING MEASURES: -**

### **Suitable extinguishing Media:**

Extinguishing media - small fires Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Extinguishing media - large fires : Alcohol-resistant foam

### **Extinguishing media which must not be used for safety reasons:**

As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion

Exposure to decomposition products may be a hazard to health.

Flash back possible over considerable distance.

### **Special protective equipment for firefighters:**

Wear full protective clothing and self-contained breathing apparatus

### **Further information:**

Do not allow run-off from fire fighting to enter drains or water courses.

Cool closed containers exposed to fire with water spray

## **ACCIDENTAL RELEASE:**

### **Personal precautions:**

Avoid contact with skin and eyes. Do not inhale fumes. For personal protection

### **Environmental precautions:**

Do not allow to enter drains or water courses. When the product contaminates public waters, inform appropriate authorities in accordance with local regulations.

### **Methods for cleaning up**

#### **Small spills:**

For small liquid spills, soak up with sand or other suitable noncombustible absorbent material, such as sawdust, and place into containers for subsequent disposal.

**Large spills:** For large spills, contain liquid far ahead of spill. Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away.

#### **Additional advice:**

If the product contaminates rivers and lakes or drains inform respective authorities



## PERSONAL PROTECTION/SAFTETY:

<b>Respiratory</b>	: Approved respiration
<b>Eye and Face</b>	: Safety goggles or face shield.
<b>Hands</b>	: Gloves.

## PERSONAL PROTECTION/SAFTETY: (Follow up )

<b>Body</b>	: Boots and apron and hat.
<b>Ventilation</b>	: provide local exhaust.
<b>Industrial hygiene</b>	: Safety shower and eye wash should be provided at work place. Do not eat, drink or smoke while Working. Wash hands before Meals and after work with soap.

## HANDLING AND STORAGE:

### **Handling:**

keep away from heat. Keep away from sources of ignition. Ground all equipment containing material.

Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing.

If ingested, seek medical advice immediately and show the container or the label.

### **Storage:**

Store in a segregated and approved area .

Keep container in a cool, well-ventilated area.

Keep container tightly closed and sealed until ready for use.

Avoid all possible sources of ignition (spark or flame).

Keep out of the reach of children.

Keep away from food, drink and animal feeding stuffs.

## STABILITY AND REACTIVITY

### **-Storage stability:**



Physically and chemically stable for at least 3 years when stored in the original unopened sales container at ambient temperatures

**-Hazardous decomposition products:**

Combustion or thermal decomposition will evolve toxic and irritant vapors

**Hazardous reactions:**

Unknown. Hazardous polymerization does not occur. Stable under normal conditions.

**PHYSICAL -CHEMICAL DATA(product) :**

**State:** liquid

**Colour :** yellow

**Odour:** Characteristic odor

**Density:** 0.93 g/cm<sup>3</sup> at 20 °C

**PH:** 4-7

**Flash Point:** 40 °C

**ACUTE TOXICITY (IRRITATION, SENSITISATION ETC.)**

**ACUTE TOXICITY: ( for active only )**

**Permethrin :**

**Oral** Oral LD<sub>50</sub> values of permethrin depend on such factors as: carrier, *cis/trans* ratio of the sample, the test species, its sex, age and degree of fasting; values reported sometimes differ markedly. Values for a *cis/trans* ratio of *c.* 40:60 are: for rats 430-4000, mice 540-2690 mg/kg; with a 20:80 ratio, the LD<sub>50</sub> is *c.* 6000 mg/kg.

**Skin and eye** Acute percutaneous LD<sub>50</sub> for rats >2500, rabbits >2000 mg/kg. Mild eye and skin irritant (rabbits). Moderate skin sensitiser.

**Inhalation** LC<sub>50</sub> (3 h) for mice and rats >685 mg/m<sup>3</sup> air; (separate study gives >13 800 mg/m<sup>3</sup>).

**NOEL** In 2 y feeding trials, rats receiving 100 mg/kg diet showed no ill-effects.

**ADI (JMPR)** 0.05 mg/kg b.w. (for tech., with *cis/trans* ratios 25:75 to 40:60) [1999].

**Water GV** 20 µg/l (based on ADI).

**Other** No mutagenic,

**Tetramethrin**

**Oral** Acute oral LD<sub>50</sub> for rats >5000 mg/kg.

**Skin and eye** Acute percutaneous LD<sub>50</sub> for rabbits >2000 mg/kg. Non-irritant to skin.

**Inhalation** LC<sub>50</sub> (4 h) for rats >2.73 mg/l air.

**NOEL** In 13 w feeding trials, dogs receiving 5000 mg/kg diet showed no ill-effects. In 6 mo feeding trials, no-effect level for rats was 1500 mg/kg diet.

**Other** No evidence of oncogenicity.



### **PBO:**

**Oral** Acute oral LD<sub>50</sub> for rats and rabbits *c.* 7500 mg/kg.

**Skin and eye** Acute percutaneous LD<sub>50</sub> for rats >7950, rabbits 1880 mg/kg. Not irritant to eyes or skin; not a skin sensitiser.

**Inhalation** LC<sub>50</sub> for rats >5.9 mg/l.

**NOEL** (2 y) for mice and rats 30 mg/kg b.w. daily; (1 y) for dogs 16 mg/kg b.w. daily.

**ADI** (JMPR) 0.2 mg/kg b.w. [1995, 2001].

**Other** Not teratogenic, mutagenic or carcinogenic.

## **ECOLOGICAL INFORMATION: -**

### **Permethrin**

**Birds** Typical oral LD<sub>50</sub> values for a *cis/trans* ratio of *c.* 40:60 are: for chickens >3000, mallard ducks >9800, Japanese quail >13 500 mg/kg.

**Fish** LC<sub>50</sub> (96 h) for rainbow trout 2.5 µg/l; (48 h) for rainbow trout 5.4, bluegill sunfish 1.8 µg/l.

**Daphnia** LC<sub>50</sub> (48 h) 0.6 µg/l.

**Bees** Toxic to bees. LD<sub>50</sub> (24 h) (oral) 0.098 µg/bee; (topical) 0.029 µg/be

### **TETRAMETHRIN**

**Birds** Acute oral LD<sub>50</sub> for bobwhite quail >2250 mg/kg. Dietary LC<sub>50</sub> for bobwhite quail and mallard ducks >5620 ppm.

**Fish** LC<sub>50</sub> (96 h) for rainbow trout 3.7, bluegill sunfish 16 µg/l.

**Daphnia** EC<sub>50</sub> (48 h) 0.11 mg/l.

**Bees** Toxic to bees.

### **PBO**

**Birds** Acute oral LD<sub>50</sub> for bobwhite quail >2250 mg/kg.

**Fish** LC<sub>50</sub> (24 h) for carp 5.3 mg/l.

**Daphnia** LC<sub>50</sub> (24 h) 2.95 mg/l.

**Algae** EC<sub>50</sub> (cell volume) for *Chlorella fusca* 44 µmol/l (*Pestic. Sci.*, **47**, 337 (1996)).

**Bees** LD<sub>50</sub> >25 µg/bee.

## **Disposal Considerations**

**Engineering measures** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

### **Occupational Exposure Limits**

Exposure controls/personal protection

Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

### **Hygiene measures**

#### **Skin and body**

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### **Personal protective equipment**

Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Wear appropriate respirator when ventilation is inadequate. Lab coat.

**Hands** Chemical resistant gloves.

**Eyes** Safety glasses.

**Respiratory system**

### **Disposal Considerations (follow up )**

#### **Product:**

Do not contaminate ponds, waterways or ditches with chemical or used container.

Do not dispose of waste into sewer.

Where possible recycling is preferred to disposal or incineration.

If recycling is not practicable, dispose of in compliance with local regulations.

#### **Contaminated packaging :**

Empty remaining contents

### **Transport Information**

#### **International transport regulations**

**UN number:** 2903

**Proper shipping name:** pesticide, liquid, toxic, flammable, n.o.s

**ADR/RID Clas:** 6.1

**Packing group:** 609

**Proper shipping name:** pesticide, liquid, toxic, flammable, , n.o.s

