



TECHNICAL DATA BULLETIN

PRODUCT TECHNICAL INFORMATION AND APPLICATIONS

PERMENE PLUS[®]

ASTRA INDUSTRIAL COMPLEX CO., LTD. (ASTRACHEM)
P.O. Box 30447, AL-KHOBAR 31952
KINGDOM OF SAUDI ARABIA

1. PRODUCT IDENTIFICATION

Product Name:	PERMENE PLUS	
Chemical Class:	Pyrethroid Insecticide	
Active Ingredients:	S-BIOALLETHRIN	1% w/v
	PERMETHRIN	10% w/v
	PIPERONYL BUTOXIDE	11% w/v

Uses: PERMENE PLUS is a public health insecticide, effective against a broad range of insects. It controls flying and crawling insect pests in public health.

2. INTRODUCTION:

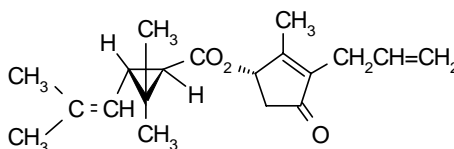
PERMENE PLUS[®] is an effective combination of two synthetic pyrethroids with Piperonyl Butoxide (synergist). It contains Permethrin with its exceptional killing properties and S-bioallethrin that has a rapid knockdown effect. Both pyrethroid ingredients synergised by Piperonyl Butoxide, which inactivate the detoxication system in the insect body.

3. ACTIVE INGREDIENT:

ACTIVE INGREDIENTS SPECIFICATIONS:

1. S-bioallethrin

CAS No.:	28434-00-6
Chemical Name (IUPAC):	(S)-3-allyl-2-methyl-4-oxocyclopent-2-enyl (1R,3R)-2,2-dimethyl-3-(2-methylprop-1-enyl)cyclopropanecarboxylate
Proportions:	9.0 -11.0 g/ L
Chemical Group:	Pyrethroid
Molecular Formula:	C ₁₉ H ₂₆ O ₃
Structural Formula:	

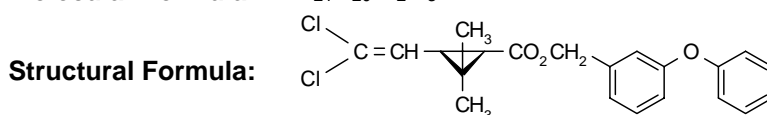




Appearance:	Yellow to brown viscous liquid
Density:	1.0 to 1.02 @ 20°C
Purity:	93% minimum (Method by GLC)
Cis isomer content:	3 ± 3%
Trans isomer:	97 ± 3%
R-isomer content:	20 ± 5%
S-isomer content:	80 ± 5%
Acidity:	0.50% maximum
Moisture:	0.30% maximum

2. Permethrin

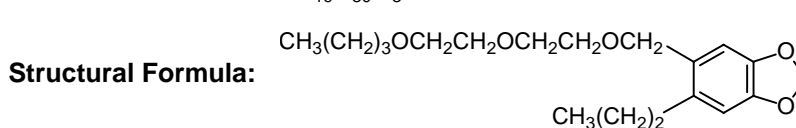
CAS No.:	7696-12-0
Proportions:	90.0-100.0 g / L
Chemical Group:	Pyrethroid
Chemical Name (IUPAC):	3-phenoxybenzyl (1 <i>RS</i> ,3 <i>RS</i> ;1 <i>RS</i> ,3 <i>SR</i>)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate
Molecular Formula:	C ₂₁ H ₂₀ Cl ₂ O ₃



Appearance:	Yellowish brown viscous liquid free from extraneous matter
Acidity :	0.5 % max. (as 2,2 dimethyl-3-(2,2 dichlorovinyl) cyclopropane carboxylic acid)
Cis-Trans Ratio:	25 : 75 (21 to 29% Cis isomer)
Density (at 25°C):	1.19 to 1.27 gm/ml

3. Piperonyl Butoxide

CAS No.:	51-03-6
Proportions:	99.0 -121.0
Chemical Group:	Insecticide synergist
Chemical Name (IUPAC):	5-[2-(2-butoxyethoxy)ethoxymethyl]-6-propyl-1,3-benzodioxole; 2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether
Molecular Formula:	C ₁₉ H ₃₀ O ₃



Appearance:	Pale to deep yellow oily liquid
Density:	1.060 (20 °C)
Purity:	90% minimum (ENDQC-3 Method by HRGC)
Acidity number:	0,1 mg KOH / g max (ENDQC-6 method)
Specific gravity:	1,060 ± 0,005 g/cm ³ @ 20°C (ENDQC-4 method)
Refractive index:	1,502 ± 0,005 @ 20°C (ENDQC-5 method)
Colour:	4,5 max Gardner scale (EnDQC-7 method)



4. PHYSIOCHEMICAL PROPERTIES OF THE PRODUCT:

Appearance	Clear light yellow liquid free of visible impurities.
Odour	Slightly Aromatic
Density	0.944 ± 0.006 g/ml
Kinatic Viscosity:	7.35 mm ² .S ⁻¹
Flash point	44.9 °C
Acidity as H ₂ SO ₄ :	<0.5 g/Kg
Water Content	< 2.0 g/Kg
Solubility in H ₂ O	Emulsifiable

5. MODE OF ACTION:

Permene plus is based on the synthetic pyrethroid Permethrin. It is a broad spectrum non-systemic insecticide with contact and stomach action. It is fast acting and has a slight repellent effect. Permene plus has good residual action, since sunlight does not break it down rapidly, compared with other synthetic Pyrethroids.

6. USES:

Permene plus is used for the control of insect pests in public health programmers, household and industrial areas as well as animal shelters. Susceptible pests are mosquitoes, domestic files, ants, ticks, lice, fleas, black-flies, tsetse fly, termites, wood boring beetles, silver-fish, bed-bugs, cockroaches, crickets and other undesirable arthropods.

7. APPLICATION:

Permene plus is applied as a spray after being diluted with water, diesel or kerosene. The choice of diluent depends on the application method and the target pest.

The following table can be used as a guide for the application of **Permene plus**

Pest	Dilution Rate	Application
Flying Insects: Flies and Mosquitoes	Dilute 1: 1000 in carrier like C-Deck, Kerosene or Diesel.	Thermal Fogging (Use 50 liter solution / ha)
	Dilute 1: 4.5 in carrier like C-Deck, Kerosene or Diesel.	ULV application (Use 0.5 liter solution / ha)



8. COMPATIBILITY:

Permene plus is compatible with most other insecticides

9. TOXICITY:

Permene plus is non-toxic to most plant species when used as recommended. However, injury has occurred on certain ornamentals such as salvia, dieffenbachia, ferns and some varieties of roses if spray directly.

10. HANDLING, STORAGE AND TRANSPORTATION:

When handling **Permene plus** operation personnel should wear impermeable boots, clean overall, appropriate gloves, hats and face mask. All protective clothing should be washed immediately after use. Hands and other exposed skin should be washed before eating, drinking or smoking.

Permene plus should be transported and stored in clearly labeled rigid and leak-proof containers, away from containers of food, feed and drink. Storage should be under lock and key and secure from access by unauthorized persons and children.

Hazard Class	6.1
Packing Group	III
UN Number	3351

11. OTHER INFORMATION

Buyer assumes all responsibility for safety and use not in accordance with the product label instructions