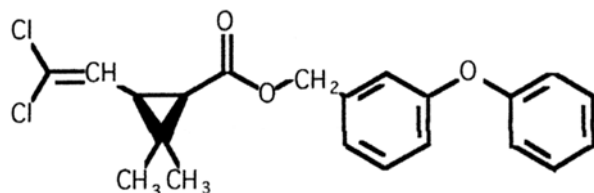


Technical Data Sheet

CHEMICAL IDENTIFICATION

Common Name:	PERMETHRIN
Permethrin 25/75:	is a mixture of cis and trans isomers, in a nominal isomeric ratio of 25:75.
Synonyms:	NRDC 143, WHO 1821,
Chemical Name:	3-phenoxybenzyl (1RS,3RS;1RS,3SR)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate.
Chemical Family:	Pyrethroid
Empirical Formula:	C ₂₁ H ₂₀ Cl ₂ O ₃
CAS No.:	52645-53-1
Purity:	93% min
Structural Formula:	



PHYSICAL AND CHEMICAL CHARACTERISTICS

Molecular Weight:	391.3
Appearance:	Solid substance with a low melting point, with a colour ranging from amber yellow to brown; the technical active substance is presented in the form of a viscous or semi-crystallised liquid at 20°C and a fluid liquid at 60°C.
Odour:	Odourless
Melting point:	Between 34 and 35°C
Boiling Point:	200°C (under 0.10 mm Hg)
Density:	1.19 to 1.27 at 20°C
Vapour Pressure:	1.3 µPa (at 20°C)
Volatility:	Non volatile
Absorption Spectrum:	2.366
Stability:	Technical Permethrin is stable at room temperature and to heat (200°C). Permethrin is stable to light. Photochemical studies have shown that it was 10 to 100 times more stable than previously developed pyrethroids. It is more stable in acid media than in alkaline media. Its optimum stability is at pH 4.
Flash point:	> 100°C
Viscosity:	552.6 mPa.S at 200C 40.6 mPa.S at 50°C

Technical Data Sheet

Solubility:	Soluble in organic solvents and mineral oils. At 20°C: water 0.01 mg/l, acetone, cyclohexanone, xylene, chloroform, hexane >500 g/l, methanol 300 g/l, ethylene glycol <30 g/l. Compatible with most common insecticides and with the synergist Piperonyl butoxide.
Explosiveness:	None explosive
Oxidising properties:	Shows no oxidising properties
Corrosive properties:	None corrosive

TOXICOLOGICAL INFORMATION

Acute oral LD ₅₀ in rats (corn oil):	1479 -4672 mg/kg
Acute dermal LD ₅₀ in rats:	>2000 mg/kg
Acute inhalation LC ₅₀ (96 h) in rats:	> 0.2 mg/l of air
Dermal irritation in guinea pigs:	non-irritant
Ocular irritation in rabbits:	non-irritant
Dermal sensitisation in guinea pigs:	non-sensitising

The oral toxicity of **Permethrin** is dependent on the *cis:trans* isomer ratio and is demonstrated in the table below:

<i>cis</i>	<i>trans</i>	Acute oral LD ₅₀ mg/kg body weight (female rats)
80	20	224
40 *	60	1260
20	80	6000

* This common isomeric ratio demonstrates an acute oral LD₅₀ approximately 3.7 times greater than Permethrin with a *cis: trans* ratio of 25:75

ECOTOXICOLOGICAL INFORMATION

LC50 (96 h) in acetone rainbow trout:	19 µ/l
LC50 (48 h) Daphnia:	0.6 µg/l

USE

Permethrin 25/75 is an effective photostable pyrethroid insecticide with a broad spectrum of insect activity. It shows good residual properties on many surfaces, depending on the formulation type and is biodegradable.

The addition of a synergist such as Piperonyl butoxide improves the "Kill" properties of the product versus certain insects

The broad efficacy spectrum of Permethrin 25/75 means that it can be used in numerous applications for both on flying and crawling insects, as an aerosol or in aerial solution form.

It is effective against a wide variety of insects:

- houseflies, blowflies and other flies
- wasps, hornets, lice, fleas
- cockroaches, earwigs, crickets, ants

Technical Data Sheet

- Coleoptera, Lepidoptera larvae
- aphids.

The main uses of Permethrin 25/75:

- Public health, against external human parasites, such as lice and their eggs, and against vector insects (mosquitoes).
- Household applications, for the control of flying and crawling insects in houses and gardens.
- Wood preservation or wool protection.
- Public hygiene, to control cockroaches, etc., and for long term control of flies and mosquitoes.
- Stored products pests (beetles, moths, lesser grain borer, dermestids, etc.)

Permethrin 25/75 can be used in aerosol formulations, such as:

- Aerosols against flying insects (flies and mosquitoes) to improve the <kill> effect of these formulations, in addition to a knockdown agent.
- Aerosols against crawling insects, to give them a residual action against cockroaches, bugs, silverfish, psocopteroids, etc.
- Anti-clothes moth aerosols for good protection of treated clothing against common moths, anthrena and attagena.

The combination of the insecticide and residual properties of Permethrin 25/75 together with its very low toxicity for humans and other mammals (cis: trans ratio of 25:75), make it a very effective product in the production of aerosols against crawling insects, with those for aerial formulations diluted in a solvent.

DOSAGE RECOMMENDATIONS

Household products:

- Aerosol: 0.15 to 0.25% w/w
- Ready To Use liquids: 0.15% w/w
- Ready To Use dusts: 0.50% w/w

Surface treatments:

Application in the form of an emulsifiable concentrate:

- Cockroaches and other crawling insects 125 / 1250 mg/m²
- Flying insects 35 / 125 mg/m²
- Mosquito larvae: 0.03 mg/l, in their natural aquatic environment : 0.005 mg/l.

Space treatments:

Against flying insects (flies/mosquitoes/stored product insects) diluted in oil based solvents or water:

Indoors:

Thermal-fogging: 0.4 mg/m³

Outdoors:

ULV treatment: 5 g/ha

Thermal-fogging: 7.5 g/ha.

Against cockroaches and crawling insects diluted in oil based solvents

Indoors

ULV and thermal-fogging treatment: 3.0 mg/m³

Technical Data Sheet

PRECAUTIONS FOR USE

As with all active substances, it is important not to eat, drink or smoke when handling it, to wear suitable gloves and a respiratory mask to protect, in particular, the eyes and face and to avoid all contact with the product. Always refer to the Material Safety Data Sheet.

PRECAUTIONS FOR STORAGE

- Keep out of reach of children.
- Keep only in the original container in a cool, well ventilated place away from air, light and humidity.
- Keep away from food, drink and animal feeding stuffs.

PACKAGING

25 and 50 kg metal drums.

LABELLING

In accordance with EEC norms relevant to the classification and labelling of dangerous goods, Permethrin 25/75 is labelled with the following symbols and phrases:

Symbol:	Xn, N,
Risk phrase:	R22, R50, R53
Safety:	S - 1,2,4,13,15,24,35,36,37,38,60 Harmful if swallowed, Very toxic to aquatic organisms. May cause long term adverse effects in the aquatic environment.

The statements made in this Data Sheet are, to the best of our knowledge, as accurate as possible, are given only for information and are without guarantee or responsibility on our part regarding the various laws or patents in connection with the use of the product. Further information is available on request.