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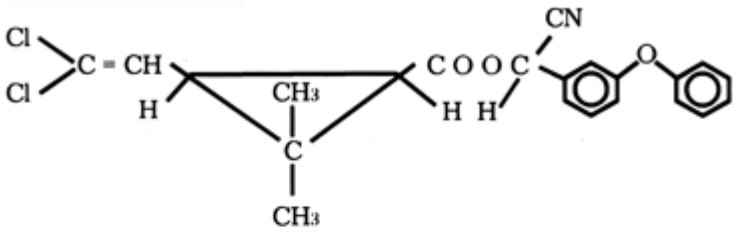
T: (033) 346 1920/2 | F: (033) 346 0512 | E: info@wefco.co.za
www.wefco.co.za

Technical Data Sheet

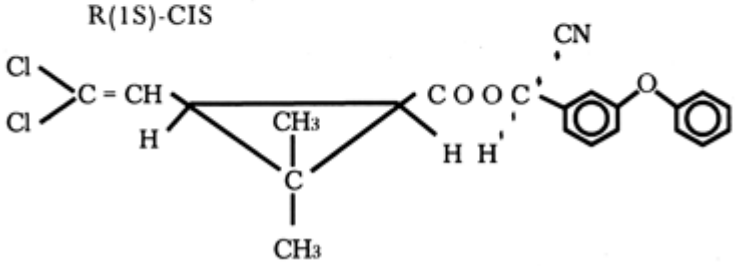
CHEMICAL IDENTIFICATION

Trade Name:	**Alpha-cypermethrin**
Chemical Names: cyano	i) A racemic mixture of (1R Cis) S and (IS Cis)R of 2 - 3 phenoxybenzyl -3-2,2 dichlorovinyl- 2,2 dimethyl cyclopropane carboxylate ii) lloc(S)*, 3∞]- (+) Cyano-(3 phenoxy phenyl) methyl 3-(2,2 dichloroethenyl)-2,2 dimethyl cyclopropane carboxylate.
Chemical Family:	Pyrethroid.
Empirical Formula:	$C_{22}H_{19}Cl_2NO_3$
CAS No:	67375-30-8
Purity:	95%
Structural Formula:	

S(1R)-CIS



R(1S)-CIS



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PHYSICAL AND CHEMICAL PROPERTIES

Molecular Weight:	416.3
Physical State:	The pure product is a colourless crystalline material. The technical material is a white to pale yellow coloured powder
Odour:	Weak aromatic odour
Melting Point:	78-81°C.
Boiling Point:	200°C
Flash Point:	> 80°C (Close cup) mPa @ 20°C
Flammability:	Non-flammable
Vapour Pressure:	2.3 x 10^{-2}
Density:	1.28 (22°C)
Solubility in water:	Practically insoluble in water.
Solubility in Solvents:	Soluble in common organic solvents like acetone, alcohol, methanol, ethyl acetate, ethylene dichloride etc.
Stability:	Very stable in neutral and acidic media
Thermal Stability:	> 220°C
Light Stability:	Stable

Alpha-cypermethrin Technical grade by Mass:

1. Purity:	95 %	minimum
2. (IR Cis) R and (IS Cis) S isomers:	3.5 %	maximum
3. Trans isomers:	1.0 %	maximum
4. Moisture content:	0.25%	maximum
5. Alkalinity (as NaOH) by mass:	0.25%	maximum

TOXICOLOGICAL PROPERTIES

It is non-phytotoxic when used in recommended doses. It has a moderate order of acute oral toxicity and a low order of acute dermal toxicity.

Route	**Species**	**LD_{50} in mg/kg of body weight.**
Oral	Rat	80-400 (In corn oil)
		400-500 (In an aqueous. suspension)
Dermal	Rats	> 2000
Dermal	Rabbits	> 2000

The toxicity to birds is low. The product is toxic to bees although under field conditions the effect on bees seems to be minimal. This may be due to the repellency property exhibited by alpha-cypermethrin. When applied correctly according to the manufacturers instructions exposure of the general population is negligible and is unlikely to present a hazard.

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ECOTOXICOLOGICAL INFORMATION

When alpha-cypermethrin is applied to crops, residues may occur in the soils and surface water, but biological degradation is fairly rapid and residues to not accumulate in the environment. Because of its rather fast breakdown and the low dose rates used in good agricultural and public health practice, it is unlikely that alpha-cypermethrin will attain significant levels in the environment.
High dose levels of alpha-cypermethrin may exert transient effects in the soil microflora. Earthworms and other soil organisms are generally rather resistant, while fish and other aquatic vertebrates are very sensitive.

USE

Alpha-cypermethrin is one of the important insecticides in the synthetic pyrethroid class. Structurally, it is a racemic mixture of two 'Cis' isomers; out of the eight isomers present in Cypermethrin. In pyrethroids, the mode of action for the insecticidal activity is due to the isobutenyl or similar groups and their structural arrangements.
Alpha-cypermethrin is a non-systemic insecticide with contact and stomach action. It acts on the central and peripheral nervous system of the target organisms in very low doses. It is effective on a wide range of chewing and sucking insects present in fruits, vegetables, oil seeds, beans, cotton & other crops. It also has domestic applications in public health for the control of cockroaches, mosquitoes, flies etc. It is also compatible with most of organophosphate insecticides.

PACKAGING

25 kg and 50 Kg Plastic drums with inner liner.

LABELLING DETAILS

In accordance with EEC norms relevant to the classification and labelling of dangerous goods, alpha – cypermethrin is labelled with the following symbols and phrases:

Symbol:	T
Risk Phase:	R 24, 25, 48
Safety Advice:	S 1, 2, 26, 27, 28, 36

GENERAL PRECAUTIONS

Like other pyrethroids, personal protective equipments like rubber gloves, goggles etc. must be used while handling the product. Contact with the skin and eye should be avoided. Wash with soap and plenty of water before eating, drinking etc. Avoid spray mist when spraying. In case of any symptoms of poisoning like nausea, vomiting, difficulty in breathing, weakness, burning or itching sensation, consult a medical doctor immediately. Product labels must be kept intact for reference. All contaminated clothing etc. must be removed. Exposed areas must be washed thoroughly with cool water and symptomatic treatment must be carried out.