



SUMITOMO CHEMICAL

# Bioallethrine<sup>®</sup>

Pyrethroid, technical product

**Common name**  
Bioallethrin

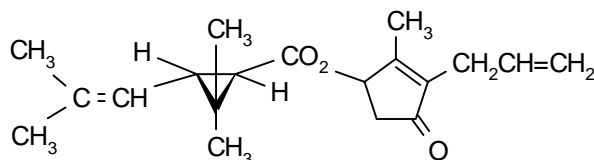
**Chemical name (IUPAC)**  
(*RS*)-3-allyl-2-methyl-4-oxocyclopent-2-enyl (1*R*, 3*R*)-2,2-dimethyl-3-(2-methylprop-1-enyl) cyclopropanecarboxylate

**Synonyms**  
d-l allethronyl d-*trans* chrysanthemate,  
d-*trans* allethrin, dépaléthrine, RU11705.

## Physico-chemical characteristics

CAS No.	584-79-2
EINECS No.	209 54 24
Molecular formula	C <sub>19</sub> H <sub>26</sub> O <sub>3</sub>
Molecular weight	302.4
Composition	Technical Bioallethrine <sup>®</sup> contains a minimum of 93% total isomers, of which >47.5% d- <i>trans</i> chrysanthemate of d-allethrolone or d- <i>trans</i> of d, the most active of all 8 isomers of the allethrin series
Appearance	Yellow-orange viscous liquid. Slight aromatic odour.
Density	1.00 to 1.02 (20°C)
Stability	Stable in most formulations with an aqueous or solvent base. Unstable to light, particularly UV light. Protect from light. Sensitive to alkaline and highly acid media.
Boiling Point	165 to 170°C (under 0.15 mm Hg)
Vapour pressure	4.4 x 10 <sup>-2</sup> Pa (25°C)
Solubility	In water: 4.6 mg/l (25°C). Soluble in most organic solvents. Compatible with most insecticides.
Optical rotation	-18.5 to -22.5° (20°C), (5% w/v solution in toluene)

## Molecular formula



## Toxicological characteristics

Acute oral LD <sub>50</sub> in rats	709 - 1042 mg/kg (depending on sex)
Acute dermal LD <sub>50</sub> in rabbits	>3,000 mg/kg
Acute inhalation LC <sub>50</sub> (4h) in rats	2.51 mg/l of air
Dermal/ocular irritation in rabbits	Non-irritant
Dermal sensitisation in guinea pigs	Non-sensitising

## Ecotoxicological characteristics

LC <sub>50</sub> (96 h) (static test) Coho salmon	9.4 µg/l
Acute oral LD <sub>50</sub> quail	2,030 mg/kg
EC <sub>50</sub> (48 h) <i>Daphnia</i>	35.6 µg/l



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## Use

Bioallethrine<sup>®</sup> is a pyrethroid insecticide with a broad spectrum of activity, acting by contact and ingestion and characterised by its strong knock-down effect. It is effective against most flying and crawling insects, in particular mosquitoes, flies, cockroaches, etc.

Bioallethrine<sup>®</sup> is widely used for the manufacture of insecticide mats, coils and liquid vaporisers.

When used alone or combined with another insecticide showing kill properties, such as Bioresmethrin, Sumithrin<sup>®</sup>, Gokilact<sup>®</sup> or Deltamethrin. Bioallethrine<sup>®</sup> is also widely used in solutions designed for aerosols, and in the formulation of liquid insecticides (concentrated or ready-to-use).

## Dosage recommendations

Liquid insecticides	For crawling insects: 0.1 to 0.3% For flying insects: 0.05 to 0.15%
Aerosols	0.15 to 0.7%
Coils	0.15 to 0.30%
Mats	35 to 40 mg per mat
Liquid vaporisers	3 to 5% w/w, for 30 ml / 30 nights

## Degradation and metabolism

The metabolism of Bioallethrine<sup>®</sup> corresponds to that of natural pyrethrins. The main reactions observed are as follows: hydrolysis, oxidation of the iso-butenyl group, of the gem-dimethyl of the cyclopropane group and of the methylene of the allyl group. Studies have shown that the main urinary metabolites are dicarboxylic chrysanthemic acid, allethrolone and some other oxidated forms.

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## 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 protective clothing to avoid all contact with the product. Always refer to the **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.

## Labelling

Bioallethrine<sup>®</sup> is classified:  
Xn, N, R20/22, R50/53

Harmful if swallowed and by inhalation,  
Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

## Packaging

25 kg metal drums.

NB.: Comply with the doses, conditions and precautions for use indicated on the packaging, which have been determined on the basis of the product characteristics and the applications for which it is recommended. On this basis, proceed with treatments according to good practice, taking into consideration, under your own responsibility, all the factors and specific conditions which may be involved and are outside our control (equipment used, application conditions, mixing of products, etc.).  
The manufacturer guarantees the quality of its products sold in their original packaging, as well as their compliance with the formula indicated on the label.

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