

PRODUCT INFORMATION



Allethrin

Item No. 24132

CAS Registry No.: 584-79-2

Formal Name: 2,2-dimethyl-3-(2-methyl-1-propen-1-yl)-cyclopropanecarboxylic acid, 2-methyl-4-oxo-3-(2-propen-1-yl)-2-cyclopenten-1-yl ester
NSC 11782, RU 27436

Synonyms:

MF: $C_{19}H_{26}O_3$

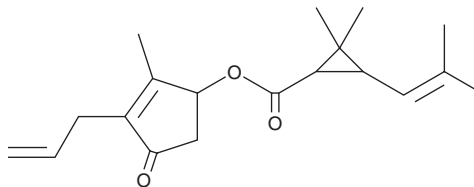
FW: 302.4

Purity: $\geq 95\%$

Supplied as: An oil

Storage: -20°C

Stability: ≥ 1 year



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Allethrin is supplied as an oil. A stock solution may be made by dissolving the allethrin in the solvent of choice, which should be purged with an inert gas. Allethrin is slightly soluble in chloroform.

Description

Allethrin is a pyrethroid insecticide and modulator of voltage-gated sodium channels (Na_v).¹ It delays channel deactivation in cockroach giant axons when used at a concentration of $1\text{ }\mu\text{M}$. Allethrin is 100-fold more potent at insect than rat $\text{Na}_v1.8$ channels expressed in *Xenopus* oocytes.² It decreases egg production by and is lethal to mosquitoes ($\text{LC}_{50} = 0.01\%$).³ Allethrin induces production of reactive oxygen species (ROS), lipid peroxidation, and apoptosis in rat primary Leydig cells.⁴ *In vivo*, the smoke of an allethrin-based mosquito coil increases levels of the hepatic enzymes ALT and AST and induces hepatocyte apoptosis as well as emphysema and lung hyperplasia in mice.⁵

References

1. Narahashi, T. Mode of action of pyrethroids. *Bull. World Health Organ.* **44(1-2-3)**, 337-345 (1971).
2. Choi, J.S. and Soderlund, D.M. Structure-activity relationships for the action of 11 pyrethroid insecticides on rat $\text{Na}_v1.8$ sodium channels expressed in *Xenopus* oocytes. *Toxicol. Appl. Pharmacol.* **211(3)**, 233-244 (2006).
3. Liu, W., Todd, R.G., and Gerberg, E.J. Effect of three pyrethroids on blood feeding and fecundity of *Aedes aegypti*. *J. Am. Mosq. Control Assoc.* **2(3)**, 310-313 (1986).
4. Madhubabu, G. and Yenugu, S. Allethrin induces oxidative stress, apoptosis and calcium release in rat testicular carcinoma cells (LC540). *Toxicol. In Vitro* **28(8)**, 1386-1395 (2014).
5. Abdulla Al-Mamun, M., Ataur Rahman, M., Habibur Rahman, M., et al. Biochemical and histological alterations induced by the smoke of allethrin based mosquito coil on mice model. *BMC Clin. Pathol.* **17(19)**, (2017).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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