

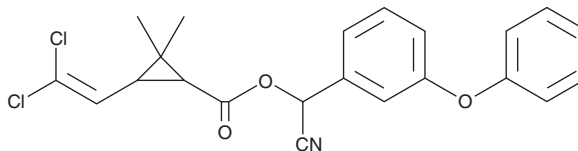
# PRODUCT INFORMATION



## Cypermethrin

Item No. 24117

**CAS Registry No.:** 52315-07-8  
**Formal Name:** 3-(2,2-dichloroethenyl)-2,2-dimethyl-cyclopropanecarboxylic acid, cyano(3-phenoxyphenyl)methyl ester  
**MF:** C<sub>22</sub>H<sub>19</sub>Cl<sub>2</sub>NO<sub>3</sub>  
**FW:** 416.3  
**Purity:** ≥95% (mixture of isomers)  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:** ≥4 years



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

### Laboratory Procedures

Cypermethrin is supplied as a solid. A stock solution may be made by dissolving the cypermethrin in the solvent of choice, which should be purged with an inert gas. Cypermethrin is slightly soluble in chloroform and methanol.

### Description

Cypermethrin is a type II pyrethroid insecticide.<sup>1-4</sup> It prolongs opening of sodium channels resulting in membrane depolarization and a conductance block of the insect nervous system, and point mutations in sodium channels induce cypermethrin-resistance in house flies, cockroaches, and mosquitos.<sup>3</sup> Cypermethrin (1-1.5 mg) reduces survival of ticks (*H. anatolicum*) *in vitro* in a concentration-dependent manner.<sup>2</sup> Topical administration of cypermethrin reduces the number of ticks on infested cattle. Cypermethrin (5 and 10 ppm) reduces survival of lice (*D. ovis*) in sheep fleece and prevents re-infestation in contact-challenged sheep for 7 and 19 weeks, respectively.<sup>1</sup> It induces developmental neurotoxicities in zebrafish, increasing mortality and edema and inducing body-axis curvature when used at concentrations ranging from 50 to 200 µg/L.<sup>5</sup> Cypermethrin (15 mg/kg twice weekly for 24 weeks) also induces Parkinson's disease-like neurodegeneration in rats, decreasing locomotor activity, dopamine production, and the number of tyrosine hydroxylase positive (TH<sup>+</sup>) neurons in the substantia nigra.<sup>4</sup> Formulations containing cypermethrin have been used in the control of insects in agriculture and on commercial and residential premises.

### References

1. Hall, C.A. The efficiency of cypermethrin (NRDC 149) for the treatment and eradication of the sheep louse *Damalinea ovis*. *Aust. Vet. J.* **54(10)**, 471-472 (1978).
2. Sajid, M.S., Iqbal, Z., Khan, M.N., *et al.* In vitro and in vivo efficacies of ivermectin and cypermethrin against the cattle tick *Hyalomma anatolicum anatolicum* (Acari: Ixodidae). *Parasitol Res.* **105(4)**, 1133-1138 (2009).
3. Hu, Z., Du, Y., and Dong, K. A sodium channel mutation identified in *Aedes aegypti* selectively reduces cockroach sodium channel sensitivity to type I, but not type II pyrethroids. *Insect Biochem. Mol. Biol.* **41(1)**, 9-13 (2011).
4. Singh, A.K., Tiwari, M.N., Prakash, O., *et al.* A current review of cypermethrin-induced neurotoxicity and nigrostriatal dopaminergic neurodegeneration. *Curr. Neuropharmacol.* **10(1)**, 64-71 (2012).
5. DeMicco, A., Cooper, K.R., Richardson, J.R., *et al.* Developmental neurotoxicity of pyrethroid insecticides in zebrafish embryos. *Toxicol. Sci.* **113(1)**, 177-186 (2010).

#### 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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#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA

**PHONE:** [800] 364-9897

[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM