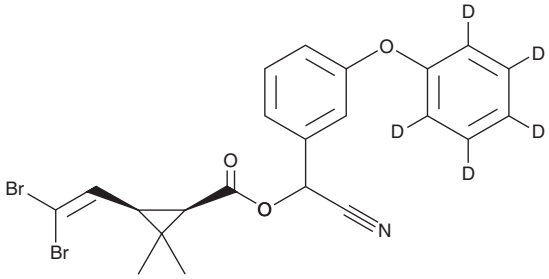
PRODUCT INFORMATION

Deltamethrin-d_5

Item No. 33710

Formal Name:	(1R,3R)-3-(2,2-dibromoethenyl)-2,2-dimethyl-cyclopropanecarboxylic acid, cyano (3-phenoxy-d_5)phenyl)methyl ester
Synonym:	Decamethrin-d_5
MF:	$C_{22}H_{14}Br_2D_5NO_3$
FW:	510.2
Chemical Purity:	≥95% (Deltamethrin; mixture of diasteriomers)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_5); ≤1% d_0
Supplied as:	A semi-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

Deltamethrin-d_5 is intended for use as an internal standard for the quantification of deltamethrin (Item No. 24172) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Deltamethrin-d_5 is supplied as a semi-solid. A stock solution may be made by dissolving the deltamethrin-d_5 in the solvent of choice, which should be purged with an inert gas. Deltamethrin-d_5 is soluble in acetonitrile, methanol, DMSO, and dimethyl formamide.

Description

Deltamethrin is a type II pyrethroid insecticide and a modulator of voltage-gated sodium channels (Na_v).[1] It activates $Na_v1.8$ channels and induces a tail current delay in *Xenopus* oocytes expressing the rat channel when used at a concentration of 10 µM. Deltamethrin induces mortality in *A. sinensis* (LC_{50} = 4.522 ppm) and *T. urticae* (LC_{50} = 0.06 g/L).[2,3] It decreases sperm count, motility, and viability and increases the percentage of morphologically abnormal sperm in rats when administered at a dose of 5 mg/kg.[4] Formulations containing deltamethrin have been used as domestic and agricultural insecticides.

References

1. Choi, J.S. and Soderlund, D.M. Structure-activity relationships for the action of 11 pyrethroid insecticides on rat $Na_v1.8$ sodium channels expressed in *Xenopus* oocytes. *Toxicol. Appl. Pharmacol.* **211(3)**, 233-244 (2006).
2. Chang, K.-S., Yoo, D.-H., Shin, E.-H., *et al.* Susceptibility and resistance of field populations of *Anopheles sinensis* (Diptera: Culicidae) collected from Paju to 13 insecticides. *Osong Public Health Res. Perspect.* **4(2)**, 76-80 (2013).
3. Penman, D.R., Chapman, R.B., and Bowie, M.H. Direct toxicity and repellent activity of pyrethroids against *Tetranychus urticae* (Acari: Tetranychidae). *J. Econ. Entomol.* **79(5)**, 1183-1187 (1986).
4. Abdallah, F.B., Slima, A.B., Dammak, I., *et al.* Comparative effects of dimethoate and deltamethrin on reproductive system in male mice. *Andrologia* **42(3)**, 182-186 (2010).

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