PRODUCT INFORMATION

Bifenthrin-d_5

Item No. 39588

Formal Name: (1R,3R)-*rel*-3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propen-1-yl]-2,2-dimethyl-cyclopropanecarboxylic acid, (2-methyl[1,1'-biphenyl-2′,3′,4′,5′,6′-d_5]-3-yl)methyl ester

Synonym: (±)-Bifenthrin-d_5

MF: $C_{23}H_{17}ClD_5F_3O_2$

FW: 427.9

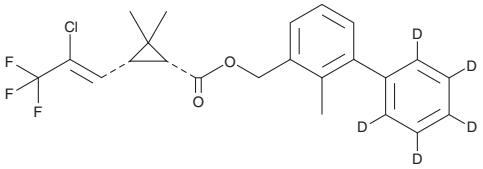
Chemical Purity: ≥95% (Bifenthrin)

Deuterium Incorporation: ≥99% deuterated forms (d_1-d_5); ≤1% d_0

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

Bifenthrin-d_5 is intended for use as an internal standard for the quantification of bifenthrin (Item No. 24057) 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).

Bifenthrin-d_5 is supplied as a solid. A stock solution may be made by dissolving the bifenthrin-d_5 in the solvent of choice, which should be purged with an inert gas. Bifenthrin-d_5 is slightly soluble in chloroform and DMSO.

Description

Bifenthrin is a synthetic pyrethroid insecticide and a slow activator of voltage-gated sodium channel 1.8 ($Na_v1.8$).[1] It is toxic to *A. gambiae* and *C. quinquefasciatus* mosquitos (LD_{50}s = 0.15 and 0.16 ng/mg, respectively) and reduces the number of insidious flower bugs (*O. insidiosus*) in corn when applied at a concentration of 168 g/ha.[2,3] Bifenthrin is toxic to *D. magna* (LC_{50} = 12.4 µg/L) and inhibits *D. magna* reproduction when used at a concentration of 1 µg/L.[4] It induces fine- and whole-body tremors and decreases motor activity in rats when administered at a dose of 20 mg/kg.[5] Bifenthrin (8 mg/kg) decreases body mass and locomotor activity, increases memory deficits in the passive avoidance test, as well as decreases the concentration of blood erythrocytes, increases lymphocyte hepatic infiltration, and increases the activity of hepatic alanine transaminase (ALT) in mice.[6] Formulations containing bifenthrin have been used as insecticides in residential and agricultural settings.

References

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3. Al-Deeb, M.A., Wilde, G.E., and Zhu, K.Y. *J. Econ. Entomol.* **94(6)**, 1353-1360 (2001).
4. Ye, W.H., Wen, Y.Z., Liu, W.P., *et al. J. Environ. Sci. (China)* **16(5)**, 843-846 (2004).
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