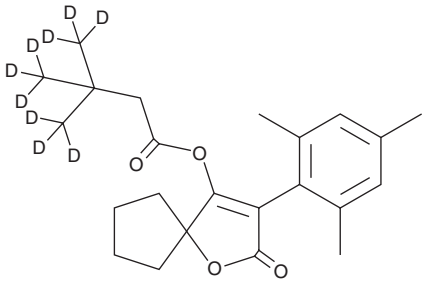
PRODUCT INFORMATION

Spiromesifen-d_9

Item No. 39033

CAS Registry No.:	2470126-90-8
Formal Name:	3,3-di(methyl-d_3)-butanoic acid-4,4,4-d_3, 2-oxo-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-4-yl ester
MF:	$C_{23}H_{21}D_9O_4$
FW:	379.5
Chemical Purity:	≥95% (Spiromesifen)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_9); ≤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

Spiromesifen-d_9 is intended for use as an internal standard for the quantification of spiromesifen (Item No. 25822) 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).

Spiromesifen-d_9 is supplied as a solid. A stock solution may be made by dissolving the spiromesifen-d_9 in the solvent of choice, which should be purged with an inert gas. Spiromesifen-d_9 is slightly soluble in chloroform and DMSO.

Description

Spiromesifen is an insecticide and acaricide that reduces lipid biosynthesis *via* inhibition of acetyl-CoA carboxylase.[1,2] It inhibits chitinase from Egyptian cotton leafworm (*S. littoralis*) larvae (IC_{50}s = 0.60 and 0.72 µM for enzyme isolated from lab and field strains, respectively).[3] It induces toxicity in whitefly (*T. vaporariorum*) nymphs (LC_{50} = 0.61 mg/L), spider mite (*T. cinnabarinus*) eggs (LC_{50} = 0.16 mg/kg), and second instar larvae of *S. littoralis* lab and field strains (LC_{50}s = 0.44 and 0.68 ppm, respectively, at 72 hours post-application).[1-3] Spiromesifen (600 mg/kg) also induces 50, 60, and 70% mortality in the Lepidoptera pests *H. armigera*, *O. nubialis*, and *P. xylostella*, respectively, and induces 100% mortality in *M. separata* when used at a dose of 100 mg/kg.[2] It induces toxicity in *D. magna* (EC_{50} = >0.092 mg a.s./L) and the fish species *O. mykiss* and *L. macrochirus* (LC_{50}s = 0.016 and >0.034 mg a.s./L, respectively) but not rats (LD_{50} = >2,000 mg/kg).[4] Spiromesifen also inhibits the human GST isozyme GSTA1-1 (IC_{50} = 12.1 µM).[5] Formulations containing spiromesifen have been used as insecticides and miticides in agriculture, as well as commercial, industrial, and residential areas.

References

1. Karatolos, N., Williamson, M.S., Denholm, I., *et al. Insect Mol. Biol.* **21(3)**, 327-334 (2012).
2. Liu, Z., Lei, Q., Li, Y., *et al. J. Agric. Food Chem.* **59(23)**, 12543-12549 (2011).
3. Ismail, S.M. and Morshedy, M. *Alexandria Sci. Exch. J.* **30(1)**, 121-127 (2009).
4. Authority, E.F.S. *EFSA J.* **10(10)**, 2879 (2012).
5. Chronopoulou, E.G., Papageorgiou, A.C., Markoglou, A., *et al. J. Mol. Catal. B: Enzymatic* **81**, 43-51 (2012).

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