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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

PRODUCT INFORMATION



Spiromesifen-d₉

Item No. 39033

CAS Registry No.: 2470126-90-8
Formal Name: 3,3-di(methyl-d₃)-butanoic acid-4,4,4-d₃, 2-oxo-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-4-yl ester

MF: C₂₃H₂₁D₉O₄
FW: 379.5

Chemical Purity: ≥95% (Spiromesifen)

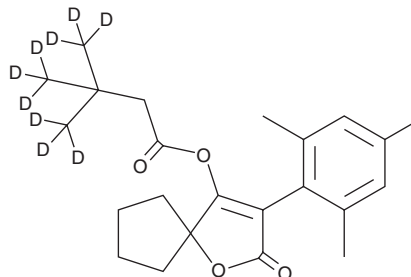
Deuterium

Incorporation: ≥99% deuterated forms (d₁-d₉); ≤1% d₀

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-d₉ 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-d₉ is supplied as a solid. A stock solution may be made by dissolving the spiromesifen-d₉ in the solvent of choice, which should be purged with an inert gas. Spiromesifen-d₉ 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 (IC₅₀s = 0.60 and 0.72 μM for enzyme isolated from lab and field strains, respectively).³ It induces toxicity in whitefly (*T. vaporariorum*) nymphs (LC₅₀ = 0.61 mg/L), spider mite (*T. cinnabarinus*) eggs (LC₅₀ = 0.16 mg/kg), and second instar larvae of *S. littoralis* lab and field strains (LC₅₀s = 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. nubilalis*, 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* (EC₅₀ = >0.092 mg a.s./L) and the fish species *O. mykiss* and *L. macrochirus* (LC₅₀s = 0.016 and >0.034 mg a.s./L, respectively) but not rats (LD₅₀ = >2,000 mg/kg).⁴ Spiromesifen also inhibits the human GST isozyme GSTA1-1 (IC₅₀ = 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).

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