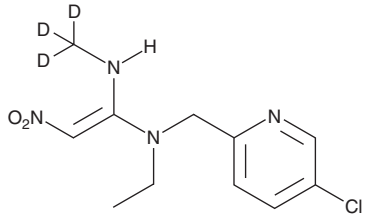
PRODUCT INFORMATION

Nitenpyram-d_3

Item No. 26783

Formal Name:	(1E)-N-[(6-chloro-3-pyridinyl)methyl]-N-ethyl-N'-methyl-d_3-2-nitro-1,1-ethenediamine
MF:	$C_{11}H_{12}ClD_3N_4O_2$
FW:	273.7
Chemical Purity:	≥98% (Nitenpyram)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_3); ≤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

Nitenpyram-d_3 is intended for use as an internal standard for the quantification of nitenpyram (Item No. 21271) 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).

Nitenpyram-d_3 is supplied as a solid. A stock solution may be made by dissolving the nitenpyram-d_3 in the solvent of choice, which should be purged with an inert gas. Nitenpyram-d_3 is soluble in organic solvents such as methanol and DMSO.

Description

Nitenpyram is a neonicotinoid insecticide.[1] It is an antagonist of housefly neuronal-type nicotinic acetylcholine receptors (nAChRs; IC_{50} = 2 nM for housefly head homogenates).[2] Nitenpyram induces mortality in brown planthopper (*N. lugens*) larvae when used at a concentration of 0.5 ppm.[3] Orally administered nitenpyram (11.4, 11.4, and 57 mg/animal, respectively) eliminates live adult fleas on cats, small dogs, and large dogs after six hours of treatment.[4] It also reduces the number of aphids, ladybugs, ladybug larvae, lacewings, and syrphid larvae on adult cotton plants when applied to cotton seeds at a concentration of 4 g/kg of seeds.[5] Formulations containing nitenpyram have been used in the control of fleas and ticks on companion animals.

References

1. Vo, D.T., Hsu, W.H., Abu-Basha, E.A., *et al.* Insect nicotinic acetylcholine receptor agonists as flea adulticides in small animals. *J. Vet. Pharmacol. Ther.* **33(4)**, 315-322 (2010).
2. Nauen, R., Ebbinghaus, U., and Tietjen, K. Ligands of the nicotinic acetylcholine receptor as insecticides. *Pest. Manag. Sci.* **55(5),** 608-610 (1999).
3. Minamida, I., Iwanaga, K., Tabuchi, T., *et al.* Synthesis and insecticidal activity of acyclic nitroethene compounds containing a heteroarylmethylamino group. *J. Pesticide Sci.* **18,** 41-48 (1993).
4. Dobson, P., Tinembart, O., Fisch, R.D., *et al.* Efficacy of nitenpyram as a systemic flea adulticide in dogs and cats. *Vet. Rec.* **147(25),** 709-713 (2000).
5. Zhang, Z., Zhang, X., Wang, Y., *et al.* Nitenpyram, dinotefuran, and thiamethoxam used as seed treatments act as efficient controls against *Aphis gossypii* via high residues in cotton leaves. *J. Agric. Food Chem.* **64(49),** 9276-9285 (2016).

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