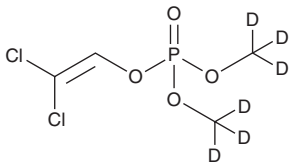
PRODUCT INFORMATION

Dichlorvos-d_6

Item No. 34517

CAS Registry No.:	203645-53-8
Formal Name:	phosphoric acid, 2,2-dichloroethenyl di(methyl-d_3) ester
Synonyms:	DDVP-d_6, Dichlorovinyl Dimethyl Phosphate-d_6
MF:	$C_4HCl_2D_6O_4P$
FW:	227.0
Chemical Purity:	≥95% (Dichlorvos)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_6); ≤1% d_0
Supplied as:	A solution in methanol
Storage:	-20°C
Stability:	≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Dichlorvos-d_6 is intended for use as an internal standard for the quantification of dichlorvos (Item No. 23727) 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).

Description

Dichlorvos is an organophosphate insecticide and inhibitor of acetylcholinesterase (AChE) and butyrylcholinesterase (BChE; IC_{50}s = 269 and 44 nM, respectively).[1] It also binds to the M_2 muscarinic receptor in rat heart homogenates.[2] Dichlorvos is lethal to 4-week old German cockroach (*B. germanica*) nymphs (LD_{50} = 0.108 µg per insect) and silkworms (*B. mori*) in third instar (LC_{50} = 6.63 mg/L) after 24 hours.[3,4] It is lethal to zebrafish (*D. rerio*) embryos (LC_{50} = 39.75 mg/L after 24 hours) and decreases swimming activity of larvae 6 days after fertilization when administered at a concentration of 25 mg/L in tank water.[5] Dichlorvos (150 ppm for 80 weeks) also increases the incidence of benign and malignant neoplasms in male rats from 47 to 88% as compared to controls.[6] Formulations containing dichlorvos have been used in the control of insects in residential areas.

References

1. Petroianu, G.A., Schmitt, A., Arafat, K., *et al*. Weak inhibitors protect cholinesterases from stronger inhibitors (dichlorvos): In vitro effect of tiapride. *Int. J. Toxicol*. **24(2)**, 79-86 (2005).
2. Silveira, C.L., Eldefrawi, A.T., and Eldefrawi, M.E. Putative M_2 muscarinic receptors of rat heart have high affinity for organophosphorus anticholinesterases. *Toxicol. Appl. Pharmacol*. **103(3)**, 474-481 (1990).
3. Qian, K., Wei, X., Zeng, X., *et al*. Stage-dependent tolerance of the German cockroach, *Blattella germanica* for dichlorvos and propoxur. *J. Insect Sci*. **10(1)**, 201 (2010).
4. Zhang, Z.-Y., Wang, D.-L., Chi, Z.-J., *et al*. Acute toxicity of organophosphorus and pyrethroid insecticides to *Bombyx mori*. *J. Econ. Entomol*. **101(2)**, 360-364 (2008).
5. Şişman, T. Dichlorvos-induced developmental toxicity in zebrafish. *Toxicol. Ind. Health* **26(9)**, 567-573 (2010).
6. Reuber, M.D. Carcinogenicity of dichlorvos. *Clin. Toxicol*. **18(1)**, 47-84 (1981).

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