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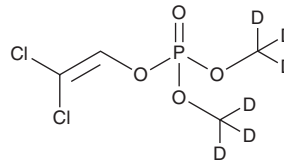
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PRODUCT INFORMATION



Dichlorvos-d₆ Item No. 34517

CAS Registry No.: 203645-53-8
Formal Name: phosphoric acid, 2,2-dichloroethenyl di(methyl-d₃) ester
Synonyms: DDVP-d₆, Dichlorovinyl Dimethyl Phosphate-d₆
MF: C₄HCl₂D₆O₄P
FW: 227.0
Chemical Purity: ≥95% (Dichlorvos)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₆); ≤1% d₀
Supplied as: A liquid
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-d₆ 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).

Dichlorvos-d₆ is supplied as a liquid. A stock solution may be made by dissolving the dichlorvos-d₆ in the solvent of choice, which should be purged with an inert gas. Dichlorvos-d₆ is soluble in methanol.

Description

Dichlorvos is an organophosphate insecticide and inhibitor of acetylcholinesterase (AChE) and butyrylcholinesterase (BChE; IC₅₀s = 269 and 44 nM, respectively).¹ It also binds to the M₂ muscarinic receptor in rat heart homogenates.² Dichlorvos is lethal to 4-week old German cockroach (*B. germanica*) nymphs (LD₅₀ = 0.108 µg per insect) and silkworms (*B. mori*) in third instar (LC₅₀ = 6.63 mg/L) after 24 hours.^{3,4} It is lethal to zebrafish (*D. rerio*) embryos (LC₅₀ = 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

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 M₂ 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).

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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