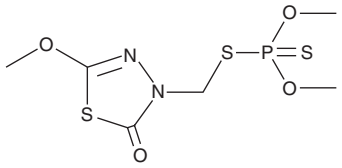
PRODUCT INFORMATION

Methidathion

Item No. 24144

CAS Registry No.: 950-37-8
Formal Name: S-[(5-methoxy-2-oxo-1,3,4-thiadiazol-3(2H)-yl) methyl]phosphorodithioic acid, O,O-dimethyl ester
MF: $C_6H_{11}N_2O_4PS_3$
FW: 302.3
Purity: ≥98%
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

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

Description

Methidathion is an organophosphate insecticide that inhibits insect cholinesterase.[1] It reduces cattle lice (*L. vituli*, *D. bovis*, and *H. eurysternus*) infestation by 99.1% when administered topically at a dose of 3.5 mg/kg.[2] Methidathion is selectively toxic to lice over cattle, only inhibiting cattle plasma acetylcholinesterase activity by 20% with no effect on survival when administered topically at a dose of 24 mg/kg. It increases sister chromatid exchange (SCE) in a concentration-dependent manner and induces cell cycle arrest at the M_1 phase in V79 cells when used at a concentration of 40 µg/ml.[3] Dietary administration of methidathion (1.4-4.7 mg/kg) increases alanine aminotransferase, aspartate aminotransferase, sorbitol dehydrogenase, and alkaline phosphatase activity, inhibits cholinesterase, and induces chronic liver inflammation in male beagle dogs.[4] It also induces loss of striation and myocytolysis of cardiomyocytes and reduces serum cholinesterase activity in rats when administered orally at a dose of 5 mg/kg.[5]

References

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3. Chen, H.H., Hsueh, J.L., Sirianni, S.R., *et al.* Induction of sister-chromatid exchanges and cell cycle delay in cultured mammalian cells treated with eight organophosphorus pesticides. *Mutat. Res.* **88(3)**, 307-316 (1981).
4. Chang, J.C., Walberg, J.A., and Campbell, W.R. One-year dietary toxicity study with methidathion in beagle dogs. *Fundam. Appl. Toxicol.* **19(2)**, 307-314 (1992).
5. Yavuz, T., Altuntas, I., Delibas, N., *et al.* Cardiotoxicity in rats induced by methidathion and ameliorating effect of vitamins E and C. *Hum. Exp. Toxicol.* **23(7)**, 323-329 (2004).

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