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Product Information

Tetraethylthiuram disulfide

Product Number **T 1132**

Store at Room Temperature

Replacement for Product Code T1,160-6

Product Description

Molecular Formula: $C_{10}H_{20}N_2S_4$

Molecular Weight: 296.5

CAS Number: 97-77-8

Melting point: 70 °C¹

Synonyms: Disulfiram¹

Disulfiram reversibly stimulates the Ca^{2+} -ATPase of skeletal muscle sarcoplasmic reticulum. The enzyme is found in the endoplasmic reticulum (ER) membrane and mediates accumulation of calcium ions by the ER. With conditions of 2.1 mM ATP, pH 7.2, 25 °C, ATPase activity doubled upon addition of 120 μ M disulfiram.²

Disulfiram is a potent, competitive, and reversible inhibitor of equine hepatic alcohol dehydrogenase. Dissociation constants for the reversible inhibition are 50 μ M (pH 7.0) and 30 μ M (pH 10.1). It was also found to chemically modify and inactivate the enzyme in an irreversible reaction via the formation of a reversible enzyme disulfiram binary complex with a dissociation constant at pH 7.0 of 30 μ M.³

A comprehensive review of this compound has been published.⁴

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

Disulfiram is soluble in DMSO (20 mM),² water (0.02 g/100 ml), ethanol (3.82 g/100 ml), ether (7.14 g/100 ml), acetone, benzene, chloroform, and carbon disulfide.¹

References

1. The Merck Index, 12th ed., Entry# 3428.
2. Starling, A. P., et al., Stimulation of the Ca^{2+} -ATPase of sarcoplasmic reticulum by disulfiram. *Biochem J.*, **320**(pt. 1), 101-105 (1996).
3. Langeland B. T., and McKinley-McKee, J. S., The effects of disulfiram and related compounds on equine hepatic alcohol dehydrogenase. *Comp. Biochem. Physiol. C Pharmacol. Toxicol. Endocrinol.*, **117**(1), 55-61 (1997).
4. Nash, N. G., and Daley, R. D., in *Analytical Profiles of Drug Substances*, Vol. 4, Academic Press (New York, NY: 1975), pp. 168-191.

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