

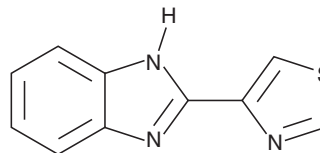
# PRODUCT INFORMATION



## Thiabendazole

Item No. 23391

**CAS Registry No.:** 148-79-8  
**Formal Name:** 2-(4-thiazolyl)-1H-benzimidazole  
**Synonyms:** NSC 90507, NSC 525040, TBZ, Tiabendazole  
**MF:** C<sub>10</sub>H<sub>7</sub>N<sub>3</sub>S  
**FW:** 201.2  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 243, 301 nm  
**Supplied as:** A crystalline solid  
**Storage:** 4°C  
**Stability:** ≥4 years



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

### Laboratory Procedures

Thiabendazole is supplied as a crystalline solid. A stock solution may be made by dissolving the thiabendazole in the solvent of choice. Thiabendazole is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of thiabendazole is approximately 0.5 mg/ml in ethanol and approximately 20 mg/ml in DMSO and DMF.

Thiabendazole is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, thiabendazole should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Thiabendazole has a solubility of approximately 0.05 mg/ml in a 1:20 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

Thiabendazole is a broad-spectrum anthelmintic that is active against a variety of helminths.<sup>1</sup> In sheep, thiabendazole (50 mg/kg) kills greater than 95% of adult worms from ten genera, including *Trichostrongylus*, *Cooperia*, *Nematodirus*, *Ostertagia*, *Haemonchus*, *Oesophagostomum*, *Bunostomum*, *Strongyloides*, *Chabertia*, and *Trichuris*. It also inhibits production of eggs and disrupts larval development. Thiabendazole inhibits fumarate reductase in helminths, which inhibits succinate formation, and therefore energy production through the citric acid cycle.<sup>2</sup> It also inhibits methionine aminopeptidase in *E. coli* (K<sub>i</sub> = 40 nM; IC<sub>50</sub> = 47.2 nM).<sup>3</sup> Formulations containing thiabendazole have been used in the control of parasitic infections in livestock.

### References

1. Brown, H.D., Matzuk, A.R., Ilves, I.R., et al. Antiparasitic drugs. IV. 2-(4'-thiazolyl)-benzimidazole, a new anthelmintic. *J. Am. Chem. Soc.* **83(7)**, 1764-1765 (1961).
2. Criado Fornelio, A., Rodriguez Caabeiro, F., and Jimenez Gonzalez, A. The mode of action of some benzimidazole drugs on *Trichinella spiralis*. *Parasitology* **95(pt 1)**, 61-70 (1987).
3. Schiffmann, R., Neugebauer, A., and Klein, C.D. Metal-mediated inhibition of *Escherichia coli* methionine aminopeptidase: Structure-activity relationships and development of a novel scoring function for metal-ligand interactions. *J. Med. Chem.* **49(2)**, 511-522 (2006).

#### 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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#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA

**PHONE:** [800] 364-9897  
[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM  
WWW.CAYMANCHEM.COM