

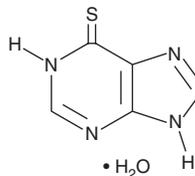
# PRODUCT INFORMATION



## 6-Mercaptopurine (hydrate)

Item No. 23675

**CAS Registry No.:** 6112-76-1  
**Formal Name:** 1,2,3,9-tetrahydro-6H-purine-6-thione, monohydrate  
**Synonym:** 6-MP  
**MF:** C<sub>5</sub>H<sub>4</sub>N<sub>4</sub>S • H<sub>2</sub>O  
**FW:** 170.2  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 202, 330 nm  
**Supplied as:** A crystalline 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

6-Mercaptopurine (6-MP) (hydrate) is supplied as a crystalline solid. A stock solution may be made by dissolving the 6-MP (hydrate) in the solvent of choice, which should be purged with an inert gas. 6-MP (hydrate) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 6-MP (hydrate) in ethanol is approximately 0.2 mg/ml and approximately 5 mg/ml in DMSO and DMF.

6-MP (hydrate) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 6-MP (hydrate) should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. 6-MP (hydrate) has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

6-MP is an inhibitor of purine synthesis and interconversion.<sup>1</sup> It is rapidly converted to 6-mercaptopurine ribonucleoside-5'-monophosphate, which inhibits phosphoribosyl pyrophosphate (PRPP) amidotransferase, the rate-limiting enzyme in purine synthesis. It also inhibits the conversion of IMP to adenylosuccinic acid and xanthylic acid and blocks AMP formation *in vitro*. 6-MP (30 mg/kg) inhibits growth of sarcoma 180, adenocarcinoma E 0771, and adenocarcinoma 755 tumors and reduces the size of leukemia L1210 subcutaneous growths in mice.<sup>2</sup> It also decreases delayed-type hypersensitivity and thyroid inflammation in a guinea pig model of thyroiditis when administered pre- or post-disease onset.<sup>3</sup> Formulations containing mercaptopurine have been used for maintenance therapy in patients with acute lymphoblastic leukemia.<sup>4</sup>

### References

1. Brockman, R.W. Biochemical aspects of mercaptopurine inhibition and resistance. *Cancer Res.* **23(8)**, 1191-1201 (1963).
2. Skipper, H.E., Thomson, J.R., Elion, G.B., *et al.* Observations on the anticancer activity of 6-mercaptopurine. *Cancer Res.* **14(4)**, 294-298 (1954).
3. Spiegelberg, H.L. and Miescher, P.A. The effect of 6-mercaptopurine and aminopterin on experimental immune thyroiditis in guinea pigs. *J. Exp. Med.* **118(5)**, 869-890 (1963).
4. Alsous, M., Abu Farha, R., Alefishat, E., *et al.* Adherence to 6-mercaptopurine in children and adolescents with acute lymphoblastic leukemia. *PLoS One* **12(9)**, e0183119 (2017).

#### 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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