

## Product Information

### 6-Propyl-2-thiouracil

Product Number **P 3755**  
Store at Room Temperature

### Replacement for Product Number H3,420-3

#### Product Description

Molecular Formula:  $C_7H_{10}N_2OS$

Molecular Weight: 170.2

CAS Number: 51-52-5

Melting Point: 219-221 °C<sup>1</sup>

$\lambda_{max}$ : 275 nm, 214 nm<sup>1</sup>

Extinction Coefficient:  $E^{mM} = 15.8$  (275 nm, methanol),  
15.6 (214 nm, methanol)<sup>1</sup>

Synonyms: propylthiouracil, 6-N-propyl-2-thiouracil,  
4-hydroxy-2-mercapto-6-propylpyrimidine, 2-thio-4-  
hydroxy-6-n-propylpyrimidine, 6-PTU

6-Propyl-2-thiouracil (6-PTU) is a thiolated uracil derivative that is a known antihyperthyroid agent.<sup>1</sup> It is known to inhibit the deiodination of thyroxine to triiodothyronine.<sup>2</sup> 6-PTU has been synthesized via the condensation of ethyl  $\beta$ -oxocaproate with thiourea.<sup>3</sup>

Various nitric oxide synthase isoforms can be inhibited by 6-PTU in irreversible and reversible mechanisms that differ with the particular isoform.<sup>4</sup> 6-PTU has been used in a study of xenograft tumor growth in a mouse model of prostate cancer.<sup>5</sup> An investigation of the taste stimuli in the chorda tympani and glossopharyngeal nerves of mice utilized 6-PTU as one of many taste agents.<sup>6</sup> The interaction of 6-PTU and other uracil derivatives with horseradish peroxidase has been studied.<sup>7</sup>

#### Precautions and Disclaimer

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

#### Preparation Instructions

This product is soluble in 1 N NaOH (50 mg/ml), with heat as needed, yielding a clear, colorless solution. It is also soluble in alcohol (16 mg/ml) and acetone (16 mg/ml). The solubility in water has been reported at 1.1 mg/ml at 20 °C and 10 mg/ml in boiling water. This product is essentially insoluble in ether, chloroform, and benzene.<sup>1</sup>

#### References

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4. Wolff, D. J., and Marks, N., The antithyroid agent 6-n-propyl-2-thiouracil is a mechanism-based inactivator of the neuronal nitric oxide synthase isoform. *Arch. Biochem. Biophys.*, **407(1)**, 83-94 (2002).
5. Theodossiou, C., and Schwarzenberger, P., Propylthiouracil reduces xenograft tumor growth in an athymic nude mouse prostate cancer model. *Am. J. Med. Sci.*, **319(2)**, 96-99 (2000).
6. Danilova, V., and Hellekant, G., Comparison of the responses of the chorda tympani and glossopharyngeal nerves to taste stimuli in C57BL/6J mice. *BMC Neurosci.*, **4(1)**, 5 (2003).
7. Zaton, A. M., and Ochoa de Aspuru, E., Horseradish peroxidase inhibition by thiouracils. *FEBS Lett.*, **374(2)**, 192-194 (1995).

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