Propylthiouracil
Item No. 14069

CAS Registry No.: 51-52-5
Formal Name: 2,3-dihydro-6-propyl-2-thioxo-4(1H)-pyrimidinone
Synonyms: NSC 6498, NSC 70461, 6-n-Propylthiouracil, PTU
MF: C7H10N2OS
FW: 170.2
Purity: ≥98%
UV/Vis.: λmax: 214, 275 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

Propylthiouracil is supplied as a crystalline solid. A stock solution may be made by dissolving the propylthiouracil in the solvent of choice, which should be purged with an inert gas. Propylthiouracil is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of propylthiouracil in these solvents is approximately 2, 10, and 12.5 mg/ml, respectively.

Propylthiouracil is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, propylthiouracil should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Propylthiouracil has a solubility of approximately 0.50 mg/ml in a 1:5 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Propylthiouracil (PTU) is a thioamide antithyroid agent. It inhibits thyroid peroxidase activity in rat and monkey thyroid microsomes (IC50 = 0.081 and 4.1 μM, respectively). PTU (30 mg/kg) increases thyroid weight and serum thyroid stimulating hormone levels and decreases serum 3,5,3′-triiodothyronine and thyroxine levels in rats. Sensitivity to the bitter taste of PTU is genetically mediated and is associated with increased sensitivity to other sweet and bitter compounds. Formulations containing propylthiouracil have been used in the treatment of Graves’ disease and hyperthyroidism.

References