

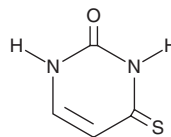
PRODUCT INFORMATION



4-Thiouracil

Item No. 16952

CAS Registry No.: 591-28-6
Formal Name: 3,4-dihydro-4-thioxo-2(1H)-pyrimidinone
Synonyms: 2-hydroxy-4-Mercaptopyrimidine, NSC 43288, 4-Thiopyrimidin-2-one, 4-TU
MF: C₄H₄N₂OS
FW: 128.1
Purity: ≥98%
UV/Vis.: λ_{max}: 246, 326 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

4-Thiouracil is supplied as a crystalline solid. A stock solution may be made by dissolving the 4-thiouracil in the solvent of choice, which should be purged with an inert gas. 4-Thiouracil is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 4-thiouracil in these solvents is approximately 2, 10, and 12, respectively.

4-Thiouracil is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 4-thiouracil should first be dissolved in DMF and then diluted with the aqueous buffer of choice. 4-Thiouracil has a solubility of approximately 0.5 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

4-Thiouracil is a site-specific, photoactivatable probe used to detect RNA structures and nucleic acid-nucleic acid contacts.¹ It absorbs ultraviolet light >300 nm and, in the presence of oxygen, acts as an energy donor to produce singlet oxygen by triplet-triplet energy transfer. The highly reactive oxygen species then reacts readily with 4-thiouracil, leading to the production of uracil and uracil-6-sulfonate, which is fluorescent at a wavelength of ~390 nm.² 4-Thiouracil is used as a *T. gondii* uracil phosphoribosyltransferase substrate to produce 4-thiouridine monophosphate, which can ultimately be incorporated into RNA.³

References

1. Miller, M.R., Robinson, K.J., Cleary, M.D., *et al.* TU-tagging: Cell type-specific RNA isolation from intact complex tissues. *Nat. Methods* **6**(6), 439-441 (2009).
2. Zou, X., Dai, X., Liu, K., *et al.* Photophysical and photochemical properties of 4-thiouracil: Time-resolved IR spectroscopy and DFT studies. *J. Phys. Chem. B.* **118**(22), 5864-5872 (2014).
3. Zeiner, G.M., Cleary, M.D., Fouts, A.E., *et al.* RNA analysis by biosynthetic tagging using 4-thiouracil and uracil phosphoribosyltransferase. *Methods Mol. Biol.* **418**, 135-146 (2008).

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.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 10/07/2022

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