

PRODUCT INFORMATION



2-Thenoyltrifluoroacetone

Item No. 15517

CAS Registry No.: 326-91-0
Formal Name: 4,4,4-trifluoro-1-(2-thienyl)-1,3-butanedione
Synonyms: NSC 66544, NSC 405702, NSC 405703, NSC 405704, NSC 405705, NSC 405706, TTFA

MF: C₈H₅F₃O₂S

FW: 222.2

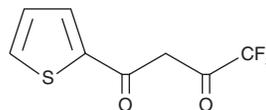
Purity: ≥98%

UV/Vis.: λ_{max}: 324, 326, 355 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

2-Thenoyltrifluoroacetone (TTFA) is supplied as a crystalline solid. A stock solution may be made by dissolving the TTFA in the solvent of choice, which should be purged with an inert gas. TTFA is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of TTFA in these solvents is approximately 30 mg/ml.

Description

TTFA is an inhibitor of respiration in animals and bacteria. In animals, TTFA binds at the quinone reduction site of succinate:ubiquinone oxidoreductase (SQR; Complex II), preventing ubiquinone from binding.^{1,2} It inhibits NADH fumarate reductase in bacteria.^{3,4} TTFA also inhibits photosystem II in plants and NADH-ubiquinone oxidoreductase of the virus *Vibrio cholerae*, decreasing cholera toxin production.^{5,6} This compound is also a chelator of metals, including lanthanum, zirconium, hafnium, and neodymium.

References

1. Sun, F., Huo, X., Zhai, Y., *et al.* Crystal structure of mitochondrial respiratory membrane protein complex II. *Cell* **121**(7), 1043-1057 (2005).
2. Horsefield, R., Yankovskaya, V., Sexton, G., *et al.* Structural and computational analysis of the quinone-binding site of complex II (succinate-ubiquinone oxidoreductase): A mechanism of electron transfer and proton conduction during ubiquinone reduction. *J. Biol. Chem.* **281**(11), 7309-7316 (2006).
3. Yankovskaya, V., Sablin, S.O., Ramsay, R.R., *et al.* Inhibitor probes of the quinone binding sites of mammalian complex II and *Escherichia coli* fumarate reductase. *J. Biol. Chem.* **271**(35), 21020-21024 (1996).
4. Chen, M., Andersen, L.P., Zhai, L., *et al.* Characterization of the respiratory chain of *Helicobacter pylori*. *FEMS Immunol. Med. Microbiol.* **24**(2), 169-174 (1999).
5. Ikezawa, N., Ifuku, K., Endo, T., *et al.* Inhibition of photosystem II of spinach by the respiration inhibitors piericidin A and thenoyltrifluoroacetone. *Biosci. Biotechnol. Biochem.* **66**(9), 1925-1929 (2002).
6. Minato, Y., Fassio, S.R., Reddekopp, R.L., *et al.* Inhibition of the sodium-translocating NADH-ubiquinone oxidoreductase [Na⁺-NQR] decreases cholera toxin production in *Vibrio cholerae* O1 at the late exponential growth phase. *Microb. Pathog.* **66**, 36-39 (2014).

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, 01/04/2023

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