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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

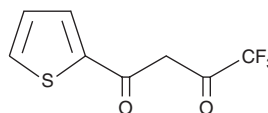
Product Information



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%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 324, 326, 355 nm



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. TTFA is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of TTFA in these solvents is approximately 30 mg/ml.

TTFA is sparingly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

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

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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**, 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 LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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Cayman Chemical

Mailing address

1180 E. Ellsworth Road
Ann Arbor, MI
48108 USA

Phone

(800) 364-9897
(734) 971-3335

Fax

(734) 971-3640

E-Mail

custserv@caymanchem.com

Web

www.caymanchem.com