

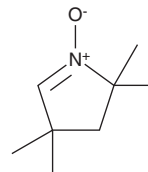
PRODUCT INFORMATION



TMPO

Item No. 20625

CAS Registry No.: 10135-38-3
Formal Name: 2,2,4,4-tetramethyl-3,4-dihydro-2H-pyrrole 1-oxide
Synonyms: M₄PO, NSC 78027,
3,3,5,5-Tetramethyl-1-pyrroline N-oxide
MF: C₈H₁₅NO
FW: 141.2
Purity: ≥98%
Supplied as: A 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

TMPO is supplied as a solid. A stock solution may be made by dissolving the TMPO in the solvent of choice, which should be purged with an inert gas. TMPO is soluble (≥10 mg/ml) in organic solvents such as ethanol and DMSO.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of TMPO can be prepared by directly dissolving the solid in aqueous buffers. TMPO is soluble (≥10 mg/ml) in PBS (pH 7.2). We do not recommend storing the aqueous solution for more than one day.

Description

TMPO is a spin trap that reacts with oxygen-, carbon-, and sulfur-centered radicals that has been used *in vitro* and *in vivo*.¹⁻⁴ It produces longer-lived adducts than DMPO (Item No. 10006436).² TMPO inhibits thymocyte apoptosis induced by etoposide (Item No. 12092), 6α-methylprednisolone (Item No. 15013), or thapsigargin (Item No. 10522) (IC₅₀s = 30.7, 19.1, and 20.2 mM, respectively).³ It has been used to monitor the formation of hydroxyl radicals in isolated rat hearts following ischemia and reperfusion.⁴

References

1. Buettner, G.R. and Britigan, B.E. The spin trapping of superoxide with M4PO (3,3,5,5-Tetramethylpyrroline-N-oxide). *Free Radic. Biol. Med.* **8**(1), 57-60 (1990).
2. Davies, M.J., Forni, L.G., and Shuter, S.L. Electron spin resonance and pulse radiolysis studies on the spin trapping of sulphur-centered radicals. *Chem. Biol. Interact.* **61**(2), 177-188 (1987).
3. Slater, A.F., Nobel, C.S., Maellaro, E., et al. Nitron spin traps and a nitroxide antioxidant inhibit a common pathway of thymocyte apoptosis. *Biochem. J.* **306**(Pt 3)(Pt 3), 771-778 (1995).
4. Culcasi, M., Pietri, S., and Cozzone, P.J. The use of 3,3,5,5-tetramethyl-1-pyrroline-1-oxide spin trap for continuous flow ESR monitoring of hydroxyl radical generation in ischemic and reperfused myocardium. *Biochem. Bioph. Res. Co.* **164**(3), 1274-1280 (1989).

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.

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