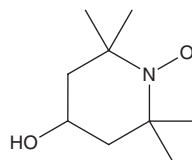


PRODUCT INFORMATION

TEMPOL

Item No. 27051

CAS Registry No.: 2226-96-2
Formal Name: 4-hydroxy-2,2,6,6-tetramethyl-1-piperidinyloxy
Synonym: 4-hydroxy TEMPO
MF: C₉H₁₈NO₂
FW: 172.2
Purity: ≥95%
UV/Vis.: λ_{max}: 242 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

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

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 TEMPOL can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of TEMPOL in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

TEMPOL is a piperidine nitroxide and spin label with superoxide dismutase (SOD) mimetic activity.¹⁻³ It inhibits lipid peroxidation in rat liver microsomes with 50% inhibition of microsomal lipid peroxidation (IP₅₀) values of 117, 61, and 381 μM for peroxidation induced by iron plus NADPH, iron plus ascorbate, and t-butylhydroperoxide, respectively.¹ TEMPOL (1 mM) inhibits production of superoxide anions by 92% via a xanthine-xanthine oxidase reaction *in vitro*.² It reduces mean arterial pressure and heart rate in spontaneously hypertensive rats (ED₅₀s = 70 and 63 μmol/kg, respectively) when administered intravenously. TEMPOL is a cell-permeable spin label that has been used to quantify intracellular oxygen in various cell types by electron spin resonance (ESR) spectroscopy.³

References

1. Nilsson, U.A., Olsson, L.I., Carlin, G., *et al.* Inhibition of lipid peroxidation by spin labels. Relationships between structure and function. *J. Biol. Chem.* **264**(19), 11131-11135 (1989).
2. Patel, K., Chen, Y., Dennehy, K., *et al.* Acute antihypertensive action of nitroxides in the spontaneously hypertensive rat. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* **290**(1), R37-R43 (2006).
3. Morse, P.D., II and Swartz, H.M. Measurement of intracellular oxygen concentration using the spin label TEMPOL. *Magn. Reson. Med.* **2**(2), 114-127 (1985).

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, 10/26/2022

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