

PRODUCT INFORMATION



Peroxynitrite

Item No. 81565 • Batch No. XXXXX

CAS Registry No.:	14042-01-4	
Formal Name:	Peroxynitrous acid, sodium salt	
Synonym:	Sodium peroxynitrite	
MF:	ONO ₂ • Na	
FW:	85.0	
Stability:	≥6 months at -80°C	O=N—O—O ^{•-} Na ⁺
Supplied as:	A solution in 0.3 M sodium hydroxide	
UV/Vis.:	λ _{max} : 302 nm ε: 1,670	
Typical Concentration:	>30 mM	
Concentration:	batch specific mM	

Laboratory Procedures

For long term storage, we suggest that peroxynitrite be stored as supplied at -80°C. It will be stable for at least three months.

Peroxynitrite is supplied as a solution in 0.3 M NaOH. Peroxynitrite is highly unstable and slowly decomposes even at -80°C but not to any significant extent within one month. The half-life of peroxynitrite in alkaline solutions at room temperature is about 5 hours. Peroxynitrite decomposes instantaneously under acidic conditions and the half-life at pH 7.4 is only few seconds.¹ Further dilutions of the stock solution can be performed using cold 0.3 M NaOH. We recommend that the actual concentration of peroxynitrite be measured following the procedure given below before using it in any experiments:

Thaw the peroxynitrite solution carefully and keep it on ice. Dilute an aliquot of the stock solution 40-fold with cold 0.3 M NaOH (e.g., add 25 μl of the stock to 975 μl of 0.3 M NaOH) and measure the absorbance at 302 nm with 0.3 M NaOH as blank. Concentration of the stock solution can be calculated using the extinction coefficient for peroxynitrite (1670 M⁻¹cm⁻¹).

Description

Peroxynitrite anion is generated by the reaction of nitric oxide with superoxide anion in a variety of biological organelles and cells.² It is a powerful oxidizing agent that can initiate lipid peroxidation, oxidize the sulfhydryls, and nitrate the aromatic residues of proteins.^{1,3,4} Cultured rats cerebrocortical neurons suffer 50% mortality when treated with 100 μM peroxynitrite for 30 minutes.⁵

References

1. Koppenol, W.H., Moreno, J.J., Pryor, W.A., *et al.* Peroxynitrite, a cloaked oxidant formed by nitric oxide and superoxide. *Chem. Res. Toxicol.* **5**, 834-842 (1992).
2. Edwards, J.O. and Plumb, R.C. The chemistry of peroxonitrites. *Prog. Inorg. Chem.* **41**, 599-635 (1994).
3. Beckman, J.S., Beckman, T.W., Chen, J., *et al.* Apparent hydroxyl radical production by peroxynitrite: Implications for endothelial injury from nitric oxide and superoxide. *Proc. Natl. Acad. Sci. USA* **87**, 1620-1624 (1990).
4. Beckman, J.S., Ye, Y.Z., Anderson, P.G., *et al.* Extensive nitration of protein tyrosines in human atherosclerosis detected by immunohistochemistry. *Biol. Chem. Hoppe-Seyler* **375**, 81-88 (1994).
5. Bonfoco, E., Krainc, D., Ankarcrona, M., *et al.* Apoptosis and necrosis: Two distinct events induced, respectively, by mild and intense insults with N-methyl-D-aspartate or nitric oxide/superoxide in cortical cell cultures. *Proc. Natl. Acad. Sci. USA* **92**, 7162-7166 (1995).

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, 11/08/2022

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