

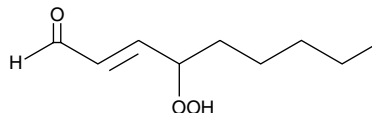
# Product Information



## 4-hydroperoxy 2-Nonenal

Item No. 10004413

**CAS Registry No.:** 7439-43-2  
**Formal Name:** 4-hydroperoxy-2E-nonenal  
**Synonym:** 4-HpNE  
**MF:** C<sub>9</sub>H<sub>16</sub>O<sub>3</sub>  
**FW:** 172.2  
**Purity:** ≥95%  
**Stability:** ≥1 year at -80°C  
**Supplied as:** A solution in acetone  
**UV/Vis.:** λ<sub>max</sub>: 217, 271 nm



### Laboratory Procedures

For long term storage, we suggest that 4-hydroperoxy 2-nonenal be stored as supplied at -80°C. It should be stable for at least one year.

4-hydroperoxy 2-Nonenal is supplied as a solution in acetone. To change the solvent, simply evaporate the acetone under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide purged with an inert gas can be used. The solubility of 4-hydroperoxy 2-nonenal in these solvents is at least 30 mg/ml.

4-hydroperoxy 2-Nonenal is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the acetone solution of 4-hydroperoxy 2-nonenal should be diluted with the aqueous buffer of choice. 4-hydroperoxy 2-Nonenal has a solubility of 0.5 mg/ml in a 1:6 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

4-hydroxy Nonenal (4-HNE) is a lipid peroxidation product derived from oxidized ω-6 polyunsaturated fatty acids, such as linoleic acid and arachidonic acid, that is widely used as a marker of oxidative stress.<sup>1,2</sup> 4-HNE exhibits various biological activities such as cytotoxicity, growth inhibiting activity, genotoxicity, and chemotactic activity.<sup>1-3</sup> 4-hydroperoxy 2-Nonenal is the immediate precursor of 4-HNE formed from the cleavage of ω-6 hydroperoxides.<sup>4</sup> Analogous reactions are expected to occur with hydroperoxides from other ω-6 fatty acids, particularly arachidonic acid.

### References

1. Pryor, W.A. and Porter, N.A. Suggested mechanisms for the production of 4-hydroxy-2-nonenal from the autoxidation of polyunsaturated fatty acids. *Free Radic. Biol. Med.* **8**, 541-543 (1990).
2. Esterbauer, H., Schaur, R.J., and Zollner, H. Chemistry and biochemistry of 4-hydroxynonenal, malonaldehyde, and related aldehydes. *Free Radic. Biol. Med.* **11**, 81-128 (1991).
3. Sodum, R.S. and Chung, F.-L. 1,N2-ethenodeoxyguanosine as a potential marker for DNA adduct formation by *trans*-4-hydroxy-2-nonenal. *Cancer Res.* **48**, 320-323 (1988).
4. Schneider, C., Tallman, K.A., Porter, N.A., *et al.* Two distinct pathways of formation of 4-hydroxynonenal. Mechanisms of nonenzymatic transformation of the 9- and 13-hydroperoxides of linoleic acid to 4-hydroxyalkenals. *J. Biol. Chem.* **276**(24), 20831-20838 (2001).

### Related Products

For a list of related products please visit: [www.caymanchem.com/catalog/10004413](http://www.caymanchem.com/catalog/10004413)

**WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.**

#### MATERIAL 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 Material Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

Cayman Chemical Company makes **no warranty or guarantee** of any kind, whether written or oral, expressed or implied, including without limitation, any warranty of fitness for a particular purpose, suitability and merchantability, which extends beyond the description of the chemicals hereof. Cayman **warrants only** to the original customer that the material will **meet our specifications at the time of delivery.**

Cayman will carry out its delivery obligations with due care and skill. Thus, in no event will Cayman have **any obligation or liability**, whether in tort (including negligence) or in contract, for any direct, indirect, incidental or consequential damages, even if Cayman is informed about their possible existence.

This limitation of liability does not apply in the case of intentional acts or negligence of Cayman, its directors or its employees.

Buyer's **exclusive remedy** and Cayman's sole liability hereunder shall be limited to a **refund** of the purchase price, or at Cayman's option, the **replacement**, at no cost to Buyer, of all material that does not meet our specifications.

Said refund or replacement is conditioned on Buyer giving written notice to Cayman within thirty (30) days after arrival of the material at its destination. Failure of Buyer to give said notice within thirty (30) days shall constitute a waiver by Buyer of all claims hereunder with respect to said material.

For further details, please refer to our **Warranty and Limitation of Remedy located on our website and in our catalog.**

Copyright Cayman Chemical Company, 06/18/2012

### 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](mailto:custserv@caymanchem.com)

#### Web

[www.caymanchem.com](http://www.caymanchem.com)