

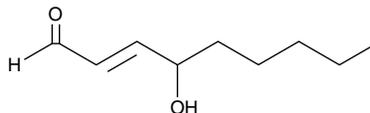
# Product Information



## 4-hydroxy Nonenal

Item No. 32100

**CAS Registry No.:** 75899-68-2  
**Formal Name:** (±)-4-hydroxy-2E-nonenal  
**Synonym:** 4-HNE  
**MF:** C<sub>9</sub>H<sub>16</sub>O<sub>2</sub>  
**FW:** 156.2  
**Purity:** ≥98%  
**Stability:** ≥6 months at -80°C  
**Supplied as:** A solution in ethanol  
**UV/Vis.:** λ<sub>max</sub>: 221 nm



### Laboratory Procedures

For long term storage, we suggest that 4-hydroxy nonenal (4-HNE) be stored as supplied at -80°C. It should be stable for at least six months.

4-HNE is supplied as a solution in ethanol. To change the solvent, simply evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of 4-HNE in these solvents is approximately 50 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. If an organic solvent-free solution of 4-HNE is needed, it can be prepared by evaporating the ethanol and directly dissolving the neat oil in aqueous buffers. The solubility of 4-HNE in PBS (pH 7.2) is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

4-HNE is a lipid peroxidation product derived from oxidized ω-6 polyunsaturated fatty acids such as arachidonic acid.<sup>1,2</sup> 4-HNE is widely used as a marker of lipid peroxidation.<sup>2</sup> It exhibits various biological activities such as cytotoxicity, growth inhibiting activity, genotoxicity, and chemotactic activity.<sup>1-3</sup> 4-HNE inhibits pro-oxidant-induced Ca<sup>2+</sup> release from mitochondria at 10-50 μM.<sup>2</sup>

### 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,N<sup>2</sup>-ethenodeoxyguanosine as a potential marker for DNA adduct formation by trans-4-hydroxy-2-nonenal. *Cancer Res.* **48**, 320-323 (1988).

### Related Products

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**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.

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