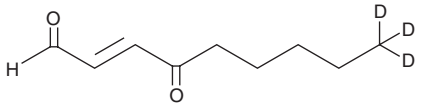
# PRODUCT INFORMATION

## 4-oxo-2-Nonenal-$d_3$

*Item No. 10004174*

**CAS Registry No.:** 1313400-91-7
**Formal Name:** 4-oxo-2E-nonenal-$d_3$
**Synonym:** 4-ONE-$d_3$
**MF:** $C_9H_{11}D_3O_2$
**FW:** 157.2
**Chemical Purity:** ≥98% (4-oxo-2-Nonenal)
**Deuterium Incorporation:** ≥99% deuterated forms ($d_1$-$d_3$); ≤1% $d_0$
**UV/Vis.:** $\lambda_{max}$: 223 nm
**Supplied as:** A solution in methyl acetate
**Storage:** -80°C
**Stability:** ≥1 year




*Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.*

## Laboratory Procedures

4-oxo-2-Nonenal-$d_3$ (4-ONE-$d_3$) contains three deuterium atoms at the terminal methyl position. It is intended for use as an internal standard for the quantification of 4-ONE (Item No. 10185) by GC- or LC-mass spectrometry (MS). The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

4-ONE-$d_3$ is supplied as a solution in methyl acetate. To change the solvent, simply evaporate the methyl acetate under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide (DMF) purged with an inert gas can be used. The solubility of 4-ONE-$d_3$ in is these solvents is approximately 50 mg/ml in ethanol and approximately 25 mg/ml in DMSO and DMF.

## Description

4-ONE is a lipid peroxidation product derived from oxidized ω-6 polyunsaturated fatty acids such as arachidonic and linoleic acid.[1,2] It exhibits various biological activities such as cytotoxicity, growth inhibiting activity, genotoxicity, and chemotactic activity and has been widely used as a marker of lipid peroxidation.[1-3] 4-ONE is a more recently identified product of lipid peroxidation.[4-6] It actively modifies histidine and lysine residues on proteins and causes protein cross-linking.[7,8] 4-ONE also modifies 2'-deoxyguanosine, further implicating lipid peroxidation in mutagenesis and carcinogenesis.[4]

## References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5. Lee, S.H. and Blair, I.A. *Chem. Res. Toxicol.* **13**, 698-702 (2000).
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