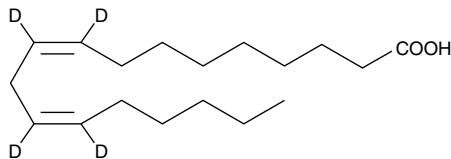


# Product Information



## Linoleic Acid-d<sub>4</sub> Item No. 390150

**CAS Registry No.:** 79050-23-0  
**Formal Name:** 9Z,12Z-octadecadienoic-9,10,12,13-d<sub>4</sub> acid  
**MF:** C<sub>18</sub>H<sub>28</sub>D<sub>4</sub>O<sub>2</sub>  
**FW:** 284.5  
**Chemical Purity:** ≥98%  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>4</sub>); ≤1% d<sub>0</sub>  
**Stability:** ≥1 year at -20°C  
**Supplied as:** A solution in methyl acetate



### Laboratory Procedures

Linoleic acid-d<sub>4</sub> contains four deuterium atoms at the 9, 10, 12, and 13 positions. It is intended for use as an internal standard for the of linoleic acid by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that linoleic acid-d<sub>4</sub> be stored as supplied at -20°C. It will be stable for at least one year.

Linoleic acid-d<sub>4</sub> 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 purged with an inert gas can be used. The solubility of linoleic acid-d<sub>4</sub> in these solvents is at least 100 mg/ml. Linoleic acid-d<sub>4</sub> is stable for at least one year in these solvents if stored at -20°C.

Linoleic acid-d<sub>4</sub> is used as an internal standard for the quantification of linoleic acid by stable isotope dilution mass spectrometry. The accuracy of the sample weight in this vial is between 5% over and 2% under. If better precision is required, the deuterated standard should be quantified against a more precisely weighed unlabeled standard of linoleic acid by construction a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Linoleic acid is a polyunsaturated fatty acid (PUFA) found in plant tissues and most cooking oils. Deficiencies in the essential fatty acid linoleic acid are linked to coronary heart disease, growth retardation, and allergies.<sup>1,2</sup> Linoleic acid can be metabolized by prostaglandin H synthases (PGHS) to form 9- and 13-HODE.<sup>3</sup> The K<sub>m</sub> is 12 μM for human PGHS-1 and 27 μM for PGHS-2.<sup>3</sup>

### References

1. Soyland, E., Fund, J., Rajka, G., *et al.* Effect of dietary supplementation with very-long-chain *n*-3 fatty acids in patients with psoriasis. *N. Engl. J. Med.* **328**, 1812-1816 (1993).
2. Hashimoto, A., Katagiri, M., Torii, S., *et al.* Effect of the dietary alpha-linolenate/linoleate balance on leukotriene production and histamine release in rats. *Prostaglandins* **36**, 3-15 (1988).
3. Laneuville, O., Breuer, D.K., Xu, N., *et al.* Fatty acid substrate specificities of human prostaglandin-endoperoxide H synthase-1 and -2. Formation of 12-hydroxy-(9Z,13E/Z,15Z)-octadecatrienoic acids from α-linolenic acid. *J. Biol. Chem.* **270**, 19330-19336 (1995).

### Related Products

For a list of related products please visit: [www.caymanchem.com/catalog/390150](http://www.caymanchem.com/catalog/390150)

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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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