

# PRODUCT DATA SHEET

## Methyl 2-hydroxytricosanoate

**Catalog number:** 1714

**Common names:** 2-Hydroxy C23:0 methyl ester

**Source:** synthetic

**Solubility:** chloroform, ethyl ether

**CAS number:** 118745-41-8

**Molecular Formula:** C<sub>24</sub>H<sub>48</sub>O<sub>3</sub>

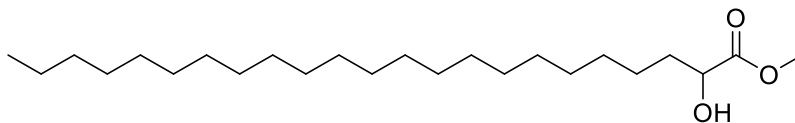
**Molecular Weight:** 385

**Storage:** -20°C

**Purity:** TLC >98%, GC >98%; identity confirmed by MS

**TLC System:** hexane/ethyl ether (70:30 by vol.)

**Appearance:** solid



### Application Notes:

2-Hydroxy very long chain fatty acids are abundant in nervous tissues and are components of cerebroside and sulfatides, which are mostly found in the myelin of nervous tissues. This *alpha*-hydroxy fatty acid contains an odd number of carbons and is much less prevalent than many other even-chain hydroxy fatty acids. It is therefore often useful as a standard or biomarker. 2-Hydroxytricosanoic acid has been reported in the marine sponge *Amphimedon compressa*.<sup>1</sup> 2-Hydroxy fatty acids are common in cosmetics and skin creams and lotions. They are formed by the oxidation of saturated fatty acids by the enzyme fatty acid 2-hydroxylase. This enzyme is also responsible for the formation of 2-hydroxy galactolipids in the peripheral nervous system.<sup>2</sup> *alpha*-Oxidation of 2-hydroxy fatty acids to CO<sub>2</sub> and fatty acid occurs in the peroxisome and is unique from the *alpha*-oxidation of *beta*-carbon branched fatty acids such as phytanic acid. Cells from Zellweger syndrome and peroxisome-deficient cells are unable to undergo *alpha*-oxidation although patients with other peroxisomal disorders such as X-linked adrenoleukodystrophy, Refsum disease, and rhizomelic chondrodysplasia punctata are able.<sup>3</sup> 2-Hydroxy fatty acids are undergoing much research and various methods of analysis are being investigated.<sup>4</sup>

### Selected References:

1. N. Carballeira and M. Lopez "On the isolation of 2-hydroxydocosanoic and 2-hydroxytricosanoic acids from the marine sponge *Amphimedon compressa*" *Lipids*, vol. 24 pp. 89-91, 1989
2. E. Maldonado et al. "FA2H is responsible for the formation of 2-hydroxy galactolipids in peripheral nervous system myelin" *Journal of Lipid Research*, Vol. 49 pp. 153-161, 2008
3. R. Sandhir, M. Khan, and I. Singh "Identification of the Pathway of *alpha*-Oxidation of Cerebronic Acid in Peroxisomes" *Lipids*, Vol. 35(10) pp. 1127-1133, 2000
4. N. Alderson, M. Walla, and H. Hama "A novel method for the measurement of in vitro fatty acid 2-hydroxylase activity by gas chromatography-mass spectrometry" *Journal of Lipid Research*, Vol. 46 pp. 1569-1579, 2005

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