

# PRODUCT DATA SHEET

## Methyl 20-hydroxyeicosanoate

**Catalog number:** 1878

**Common names:** *omega*-Hydroxy C20:0  
methyl ester

**Source:** synthetic

**Solubility:** chloroform, warm ethanol, ethyl  
ether

**CAS number:** 37477-29-5

**Molecular Formula:** C<sub>21</sub>H<sub>42</sub>O<sub>3</sub>

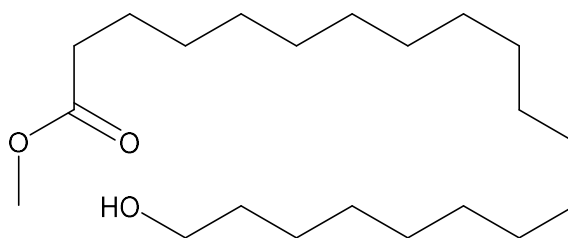
**Molecular Weight:** 343

**Storage:** room temperature

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

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

**Appearance:** solid



### Application Notes:

This product is a high purity *omega*-hydroxy very long chain fatty acid methyl ester that is ideal as a standard and for biological studies. *Omega*-oxidation is a minor fatty acid pathway used for fatty acid metabolism and usually occurs in the smooth endoplasmic reticulum. Eicosanoic acid is enzymatically converted to the 20-hydroxyeicosanoic acid as well as to the eicosadecarboxylic acid as part of the *omega*-oxidation metabolic pathway. Stimulation of *omega*-hydroxylation has been proposed as a method for treating X-linked adrenoleukodystrophy, a disease that is characterized by elevated levels of very long chain fatty acids.<sup>1</sup> *Omega*-hydroxy fatty acids have an important role acylated to various lipids. *Omega*-hydroxylated very long chain fatty acid (VLCFA) ceramides are vital to skin barrier functions and a deficiency of these lipids can cause death from water loss through the skin. A mutation in an elongase enzyme for VLCFA results in a deficiency in *omega*-hydroxylated VLCFA-ceramides which causes a muscular dystrophy disease, defective skin-water permeability barrier function, and neurological disorders showing the importance of these VLCFA ceramides.<sup>2</sup> Sphingolipids (such as sphingomyelin, ceramides, and glucosylceramides) acylated with polyunsaturated and *alpha*- or *omega*-hydroxylated VLCFA have been found in the spermatozoa/testes and in the epidermis. Sphingolipids with VLCFA may be responsible for the maturation of these cell.<sup>3</sup>

### Selected References:

1. R. Sanders et al. "*Omega*-Oxidation of Very Long-Chain Fatty Acids in Human Liver Microsomes: Implications for X-Linked Adrenoleukodystrophy" *Journal of Biological Chemistry*, Vol. 281 pp. 13180-13187, 2006
2. W. Li "Depletion of ceramides with very long chain fatty acids causes defective skin permeability barrier function, and neonatal lethality in ELOVL4 deficient mice" *Int J Biol Sci*, Vol. 3 pp. 120-128, 2007
3. R. Sandhoff "Very long chain sphingolipids: Tissue expression, function and synthesis" *FEBS Letters* Vol. 584(9) pp. 1907-1913, 2010

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