

PRODUCT DATA SHEET

15-Hydroxypentadecanoic acid

Catalog number: 1881

Common name: *omega*-Hydroxy C15:0 fatty acid

Source: synthetic

Solubility: chloroform, ethanol, methanol

CAS number: 4617-33-8

Molecular Formula: C₁₅H₃₀O₃

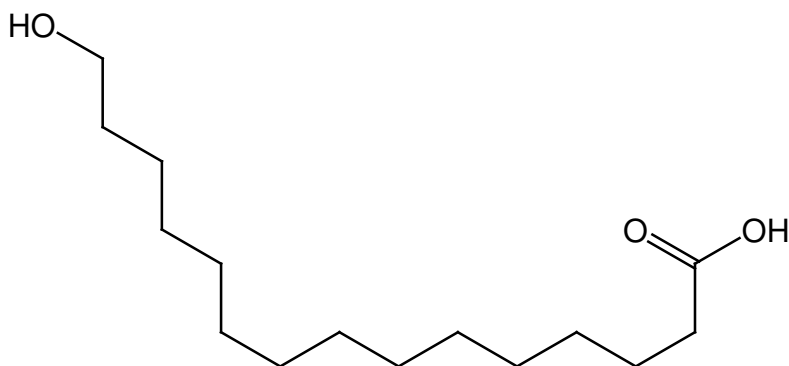
Molecular Weight: 258

Storage: room temperature

Purity: TLC >98%; GC >98%; Identity confirmed by MS

TLC System: hexane/ethyl ether/acetic acid (85:15:1)

Appearance: solid



Application Notes:

This odd numbered *omega*-hydroxy pentadecanoic acid is ideal as an internal standard for studies involving medium to long-chain *omega*-hydroxy fatty acids.¹ *omega*-Hydroxy C15:0 fatty acid and other *omega*-hydroxy fatty acids can be lactonized by certain enzymes into mono- and oligolactones.² *omega*-Oxidation is a minor fatty acid pathway used for fatty acid metabolism and usually occurs in the smooth endoplasmic reticulum. 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.³ *omega*-Hydroxy fatty acids have an important role while 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. In atopic dermatitis, a common skin disease, there are considerable deficiencies of *omega*-hydroxy long chain fatty acids acylated to ceramides and this may contribute to the severely damaged permeability barrier found in this disease.⁴

Selected References:

1. M. Nakano, E. Kelly, and A. Rettie "Expression and Characterization of CYP4V2 as a Fatty Acid ω -Hydroxylase" *Drug Metabolism and Disposition*, vol. 37 pp. 2119-2122, 2009
2. U. Antczak et al. "Enzymatic lactonization of 15-hydroxypentadecanoic and 16-hydroxyhexadecanoic acids to macrocyclic lactones" *Enzyme and Microbial Technology*, vol. 13 pp. 589-593, 1991
3. 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
4. O. Macheleidt, H. Kaiser, K. Sandhoff "Deficiency of epidermal protein-bound *omega*-hydroxyceramides in atopic dermatitis" *J Invest Dermatol.*, vol. 119 pp. 166-173, 2002

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