

PRODUCT DATA SHEET

2-Hydroxydocosanoic acid

Catalog number: 1711

Common Name: 2-Hydroxy C22:0 fatty acid

Source: synthetic

Solubility: chloroform/methanol, 5:1

CAS number: 13980-14-8

Molecular Formula: C₂₂H₄₄O₃

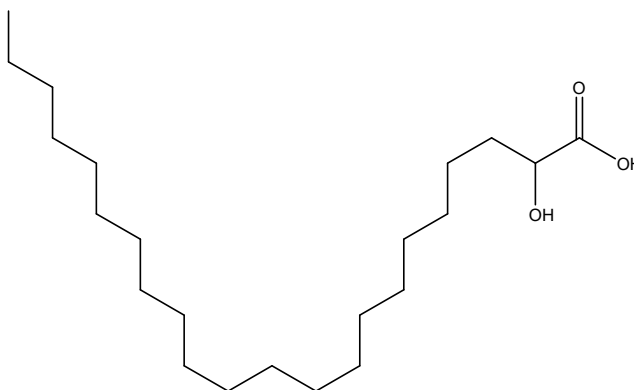
Molecular Weight: 357

Storage: -20°C

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

TLC System: hexane/ethyl ether/acetic acid (70:30:2 by vol.)

Appearance: solid



Application Notes:

alpha-Hydroxy very long chain fatty acids are abundant in nervous tissues and are components of cerebrosides and sulfatides, which are mostly found in myelin of nervous tissues. They are common in cosmetics and skin creams and lotions. 2-hydroxydocosanoic acid has been reported in at least one marine organism. 2-Hydroxydocosanoic acid is formed by the oxidation of docosanoic acid by the enzyme fatty acid 2-hydroxylase. This enzyme is also responsible for the formation of 2-hydroxy galactolipids in the peripheral nervous system.¹ *alpha*-Oxidation of 2-hydroxydocosanoic acid to CO₂ and heneicosanoic 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 to.² 2-Hydroxydocosanoic acid is undergoing much research and various methods of analysis are being investigated.³

Selected References:

1. 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
2. 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
3. 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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