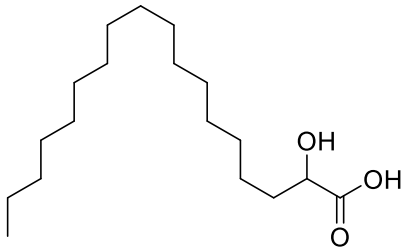
PRODUCT DATA SHEET

2-Hydroxyoctadecanoic acid

Catalog number: 1707
Synonyms: 2-Hydroxy C18:0 fatty acid; *alpha*-Hydroxyoctadecanoic acid
Source: synthetic
Solubility: chloroform/methanol, 5:1
CAS number: 629-22-1
Molecular Formula: $C_{18}H_{36}O_3$

Molecular Weight: 300
Storage: -20˚C
Purity: TLC: >98%, GC: >98%; identity confirmed by MS
TLC System: hexane/ethyl ether/acetic acid (70:30:2)
Appearance: solid



Application Notes:

This product is a high purity 2-hydroxy fatty acid that is ideal as a standard and for biological systems. 2-Hydroxy fatty acids are abundant in nervous tissues and are components of cerebrosides and sulfatides, which are mostly found in the myelin of nervous tissues. They are common in cosmetics, skin creams, and lotions. 2-hydroxy acids display complex monolayer phase behavior due to the additional hydrogen bonding afforded by the presence of the second hydroxy group and therefore play an important role in the membrane structure.[1] 2-Hydroxy fatty acids are formed from the oxidation of 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.[2] 2-hydroxy fatty acids are a putative category of root exudate signal perceived by *Gigaspora* species, stimulating an increase in elongated lateral branches.[3] *alpha*-Oxidation of 2-hydroxy fatty acids to CO_2 and saturated acids 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 of these 2-hydroxy acids although patients with other peroxisomal disorders such as X-linked adrenoleukodystrophy, Refsum disease, and rhizomelic chondrodysplasia punctata are able.[4] Fumonisin B1, a sphingolipid-like toxin found in molds, enhances the accumulation of sphingolipids and 2-hydroxy fatty acids while decreasing the amount of trihydroxy fatty acids.[5]

Selected References:

1. C. Lendrum et al. "Nonequilibrium 2-Hydroxyoctadecanoic Acid Monolayers: Effect of Electrolytes" *Langmuir*, vol. 27 pp. 4430-4438, *2011*
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. G. Nagahashi and D. Douds Jr. "The effects of hydroxy fatty acids on the hyphal branching of germinated spores of AM fungi" *Fungal Biology*, vol. 115 pp. 351-358, *2011*
4. 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*
5. T. Kaneshiro et al. "2-Hydroxyhexadecanoic and 8,9,13-trihydroxydocosanoic acid accumulation by yeasts treated with fumonisin B1" *Lipids*, vol. 28 pp. 397-401, *1993*

2178 High Tech Road, State College, PA 16803
www.matreya.com · Phone (814) 355-1030 · Fax (814) 355-1031