

PRODUCT DATA SHEET

3-Hydroxytridecanoic acid

Catalog number: 1733

Common names: 3-Hydroxy C13:0 fatty acid

Source: synthetic

Solubility: chloroform, ethanol, methanol

CAS number: 32602-69-0

Molecular Formula: C₁₃H₂₆O₃

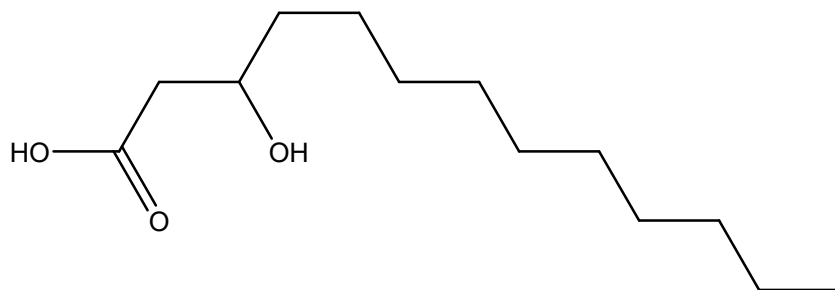
Molecular Weight: 230

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 3-hydroxytridecanoic acid is a high purity standard that is ideal for analysis and biological systems. 3-Hydroxytridecanoic acid is unusual in many biological systems and is therefore useful as an internal standard.¹ However 3-hydroxytridecanoic acid is a major constituent of some organisms such as in the anaerobic bacterium *Veillonella*.² 3-Hydroxy fatty acids are intermediates in fatty acid biosynthesis and have been found to be converted to the *omega*-fatty acid by the enzyme CYP4F11 and then into dicarboxylic acids *in vivo*.³ 3-Hydroxy fatty acids are used as biomarkers for fatty acid oxidative disorders of both the long- and short-chain 3-hydroxy-acyl-CoA dehydrogenases.⁴ Polyhydroxyalkenoates, polyesters produced by bacteria fermentation, are used for carbon and energy storage and are of interest in studies regarding their synthesis, properties and mechanisms and are used as biodegradable plastics.⁵ Medium chain-length polyhydroxyalkenoate monomers may have pharmaceutical properties.

Selected References:

1. L Larsson and A. Saraf "Use of gas chromatography-ion trap tandem mass spectrometry for the detection and characterization of microorganisms in complex samples" *Molecular Biotechnology*, vol. 7 pp. 279-287, 1997
2. D. Bishop et al. "Occurrence of 3-hydroxytridecanoic and 3-hydroxypentadecanoic acids in the lipopolysaccharides of *Veillonella*" *Biochimica et Biophysica Acta (BBA) - Lipids and Lipid Metabolism*, vol. 231 pp. 274-276, 1971
3. M. Dhar et al. "Omega oxidation of 3-hydroxy fatty acids by the human CYP4F gene subfamily enzyme CYP4F11" *Journal of Lipid Research*, vol. 49, pp. 612-624, 2008
4. P. Jones et al. "Accumulation of free 3-hydroxy fatty acids in the culture media of fibroblasts from patients deficient in long-chain l-3-hydroxyacyl-CoA dehydrogenase: a useful diagnostic aid" *Clinical Chemistry*, vol. 47(7) pp. 1190-1194, 2001
5. J. Gangoti et al. "Production of Chiral (*R*)-3-Hydroxyoctanoic Acid Monomers, Catalyzed by *Pseudomonas fluorescens* GK13 Poly(3-Hydroxyoctanoic Acid) Depolymerase" *Applied and Environmental Microbiology*, vol. 76 pp. 3554-3560, 2010

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