

PRODUCT DATA SHEET

Methyl 3-hydroxyundecanoate

Catalog number: 1730

Synonyms: 3-Hydroxy C11:0 methyl ester

Source: synthetic

Solubility: chloroform, ethanol, methanol

CAS number: 127593-21-9

Molecular Formula: C₁₂H₂₄O₃

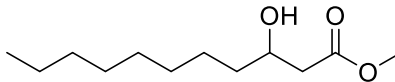
Molecular Weight: 216

Storage: -20°C

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

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

Appearance: liquid



Application Notes:

This 3-hydroxyundecanoic acid methyl ester is a high purity standard that is ideal for analysis and biological systems. 3-Hydroxyundecanoic acid is unusual in many biological systems and is therefore useful as an internal standard.¹ However 3-hydroxyundecanoic acid is a major constituent of some organisms such as in *Idiomarina loihiensis* where it is concentrated in the membrane.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 Polyhydroxyalkanoates, 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 polyhydroxyalkanoate monomers may have pharmaceutical properties.

Selected References:

1. H. Lind et al. "Antifungal compounds from cultures of dairy propionibacteria type strains" *FEMS Microbiology Letters*, vol. 271 pp. 310-315, 2007
2. S. Hou et al. "Genome sequence of the deep-sea *gamma*-proteobacterium *Idiomarina loihiensis* reveals amino acid fermentation as a source of carbon and energy" *PNAS*, vol. 101 pp. 18036-18041, 2004
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 1-3-hydroxyacyl-CoA dehydrogenase: a useful diagnostic aid" *Clinical Chemistry*, vol. 47(7) pp. 1190-1194, 2001
5. J. Gangoiti 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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