

PRODUCT DATA SHEET

Methyl 3-hydroxydecanoate

Catalog number: 1728

Synonyms: 3-Hydroxy C10:0 methyl ester

Source: synthetic

Solubility: chloroform, ethanol, methanol

CAS number: 62675-82-5

Molecular Formula: C₁₁H₂₂O₃

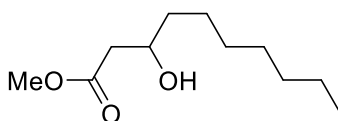
Molecular Weight: 202

Storage: -20°C

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

TLC System: hexane/ethyl ether (70:30)

Appearance: liquid



Application Notes:

This 3-hydroxydecanoic acid methyl ester is a high purity standard that is useful for the investigation of disorders and diseases. 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*.¹ 3-Hydroxydecanoic acid is the prevalent fatty acid in the rhamnolipid of *Pseudomonas aeruginosa*.² The biologically natural chiral (R)-3-hydroxydecanoic acid is an intermediate in fatty acid biosynthesis. 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.³ Polyhydroxyalkenoates of 3-hydroxy fatty acids are polyesters produced by bacteria fermentation and are used for carbon and energy storage. These polyhydroxyalkenoates are of interest in studies regarding the synthesis, properties and mechanisms of bacteria. Short chain-length polyhydroxyalkenoate monomers such as 3-hydroxy fatty acids may have pharmaceutical properties.^{4,5}

Selected References:

1. 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
2. Q. Wang et al. "Engineering Bacteria for Production of Rhamnolipid as an Agent for Enhanced Oil Recovery" *Biotechnology and Bioengineering*, vol. 98 pp. 842-853, 2007
3. 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
4. J. Gangotri 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
5. Z. Zheng et al. "Production of 3-hydroxydecanoic acid by recombinant *Escherichia coli* HB101 harboring phaG gene" *Antonie Van Leeuwenhoek*, vol. 85 pp. 93-101, 2004

This product is to be used for research only. It is not intended for drug or diagnostic use, human consumption or to be used in food or food additives. Matreya assumes no liability for any use of this product by the end user. We believe the information, offered in good faith, is accurate.