

PRODUCT DATA SHEET

Phytanic acid

Catalog number: 1195

Synonyms: 3,7,11,15-

Tetramethylhexadecanoic acid

Source: semisynthetic

Solubility: chloroform, methanol

CAS number: 14721-66-5

Molecular Formula: C₂₀H₄₀O₂

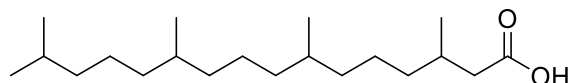
Molecular Weight: 312

Storage: -20°C

Purity: GC >97%

TLC System: hexane/ethyl ether/acetic acid
(80:20:1)

Appearance: liquid



Application Notes:

This high purity phytanic acid is ideal as an analytical standard and for use in biological systems. Phytanic acid in animals is derived from phytol, a breakdown product of chlorophyll which is caused by bacteria in the gut of ruminant animals. It is predominantly found in ruminant fats and in some fish. In the metabolism of phytanic acid it must first be converted to pristanic acid via *alpha*-oxidation, due to the presence of the methyl group at the 3-position, before undergoing *beta*-oxidation. Phytanic acid has been suggested as being linked with prostate cancer but there is now evidence against this view.¹ In diseases involving peroxisomal impairment the branched chain fatty acids phytanic acid and pristanic acid accumulate in high amounts due to deficiencies in *alpha*- and *beta*-oxidation.² Phytanic acid is a ligand and transcriptional activator of murine liver fatty acid binding protein thereby causing peroxisome proliferation.³

Selected References:

1. A. Price et al. "Plasma phytanic acid concentration and risk of prostate cancer: results from the European Prospective Investigation into Cancer and Nutrition, *Am J Clin Nutr*, Vol. 91 pp. 1769-1776, 2010
2. N. Kruska and G. Reiser "Phytanic acid and pristanic acid, branched-chain fatty acids associated with Refsum disease and other inherited peroxisomal disorders, mediate intracellular Ca²⁺ signaling through activation of free fatty acid receptor GPR40" *Neurobiology of Disease*, Vol. 43(2) pp. 465-472, 2011
3. C. Wolfrum et al. "Phytanic acid is ligand and transcriptional activator of murine liver fatty acid binding protein" *JLR*, Vol. 40 pp. 708-714, 1999

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