

PRODUCT DATA SHEET

Methyl stearidonate (all *cis*-6,9,12,15)

Catalog number: 1277

Synonyms: C18:4 (all *cis*-6,9,12,15) Methyl ester; Morotic acid methyl ester

Source: natural, plant

Solubility: chloroform, hexane, ethyl ether

CAS number: 73097-00-4

Molecular Formula: C₁₉H₃₀O₂

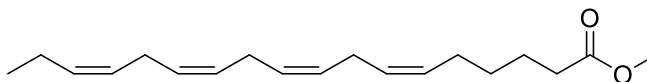
Molecular Weight: 291

Storage: -20°C

Purity: TLC: 99%, GC: 99%; identity confirmed by MS

TLC System: hexane/ethyl ether (80:20 by vol.)

Appearance: liquid



Application Notes:

This product is a high purity polyunsaturated fatty acid methyl ester that is ideal for analysis and biological studies. Recently it has been found that conjugated stearidonic acid can be produced by the bacteria bifidobacteria and propionibacteria from stearidonic acid, suggesting an as yet unexplored pathway of stearidonic acid in mammals through intestinal microbes.¹ Stearidonic acid, along with similar polyunsaturated fatty acids, demonstrates inhibitory effects on the 5-lipoxygenase pathway,² tumor necrosis factor,³ and prostoglandin E₂,³ thereby suppressing inflammation. Stearidonic acid is the product of the rate-limiting step in the synthesis of eicosapentaenoic acid from *alpha*-linolenic acid and is thus more readily converted to eicosapentaenoic than is *alpha*-linolenic acid.⁴ Eicosapentaenoic acid has been shown to lower the risk of cardiovascular disease and stearidonic acid is therefore also important in reducing this risk.⁴ Much research is currently being carried out to try to introduce more stearidonic acid into the human diet.

Selected References:

1. A. Hennessy et al. "The Production of Conjugated *alpha*-Linolenic, *gamma*-Linolenic and Stearidonic Acids by Strains of Bifidobacteria and Propionibacteria" *Lipids*, Vol. 47:3 pp. 313-327, 2012
2. M. Guichardant et al. "Stearidonic acid, an inhibitor of the 5-lipoxygenase pathway. A comparison with timnodonic and dihomogammalinolenic acid" *Lipids*, Vol. 28:4 pp. 321-324, 1993
3. K. Ishihara et al. "Comparison of the effects of dietary *alpha*-linolenic, stearidonic, and eicosapentaenoic acids on production of inflammatory mediators in mice" *Lipids*, Vol. 37:5 pp. 481-486, 2002
4. S. Lemke et al. "Dietary intake of stearidonic acid-enriched soybean oil increases the *omega*-3 index: randomized, double-blind clinical study of efficacy and safety" *Am J Clin Nutr*, Vol. 92:4 pp. 766-775, 2010

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