

# PRODUCT DATA SHEET

## Methyl octadecatrienoate (all *cis*-6,9,12)

**Catalog number:** 1154

**Common Name:** Methyl *gamma*-linolenate;  
C18:3 (all-*cis*-6,9,12) methyl  
ester

**Source:** natural, plant

**Solubility:** chloroform, hexane, ethyl ether

**CAS number:** 16326-32-2

**Molecular Formula:** C<sub>19</sub>H<sub>32</sub>O<sub>2</sub>

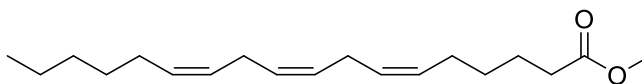
**Molecular Weight:** 292

**Storage:** -20°C

**Purity:** TLC: 99%, GC: 99%

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

**Appearance:** liquid



### Application Notes:

*gamma*-Linolenic acid (GLA) is found in high amounts in plant oils but can also be found in animals and other sources. GLA has become a popular nutritional supplement due to its many possible benefits. Dietary supplementation of GLA has been used to treat diseases that have low levels of PUFAs that result from a deficiency in the *delta*-6-desaturase enzyme since GLA already contains the n-6 desaturation.<sup>1</sup> Some evidence has suggested that GLA can prevent the triggering of hypertension.<sup>2</sup> GLA is elongated *in vivo* to dihomo-*gamma*-linolenic acid (C20:3) which can be converted by inflammatory cells to 15-(S)-hydroxy-8,11,13-eicosatrienoic acid and prostaglandin E<sub>1</sub> both of which have anti-inflammatory and antiproliferative properties.<sup>3</sup> GLA along with eicosapentaenoic acid have been found to enhance calcium absorption, reduce excretion and increase calcium deposition in bone, making it a possible osteoporosis treatment.<sup>4</sup> Due to cancer cells having very low levels of *cis*-unsaturated fatty acids GLA, along with other *cis*-unsaturated fatty acids, are being investigated for their antitumor potential.

### Selected References:

1. Y. Huang et al. "Cloning of *delta* 12- and *delta* 6-Desaturases from *Mortierella alpina* and Recombinant Production of *gamma*-Linolenic Acid in *Saccharomyces cerevisiae*" *Lipids*, Vol. 34(7) pp. 649-659, 1999
2. D. Mills, M. Summers, R. Ward "Gamma Linolenic Acid Attenuates Cardiovascular Responses to Stress in Borderline Hypertensive Rats" *Lipids*, Vol. 20(9) pp. 573-577, 1985
3. Y. Fan and R. Chapkin "Importance of Dietary *gamma*-Linolenic Acid in Human Health and Nutrition" *The Journal of Nutrition*, Vol. 128(9) pp. 1411-1414, 1998
4. M. Kruger et al. "Calcium, *gamma*-linolenic acid and eicosapentaenoic acid supplementation in senile osteoporosis" *Aging*, Vol. 10(5) pp. 385-394, 1998

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