

# PRODUCT DATA SHEET

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### Eicosapentaenoic acid (all *cis*-5,8,11,14,17)

**Catalog No:** 1167

**Common Name:** EPA; *omega*-3 Fatty acid;  
C<sub>20</sub>:5 (all *cis*-5,8,11,14,17) Fatty  
acid

**Source:** natural, fish oil

**Solubility:** chloroform, hexane, ethyl ether,  
ethanol, DMSO, DMF

**CAS No:** 10417-94-4

**Molecular Formula:** C<sub>20</sub>H<sub>30</sub>O<sub>2</sub>

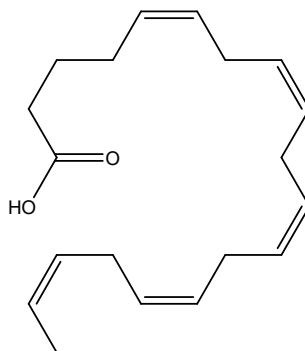
**Molecular Weight:** 302

**Storage:** -20°C

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

**TLC System:** hexane/ethyl ether/acetic acid  
(80:20:1 by vol.)

**Appearance:** liquid



### Application Notes:

Eicosapentaenoic acid (EPA) is an *omega*-3 fatty acid and is an essential fatty acid in mammals. It is among the most abundant polyunsaturated fatty acids in fish oil although fish obtain EPA from algae. Levels of EPA (and other *omega*-3 fatty acids) have been linked to many diseases and disorders. Low levels of EPA are associated with depression, schizophrenia, and Alzheimer's disease<sup>1</sup> and supplementation with EPA is being investigated for its use as a treatment. However, a diet rich in EPA may lead to enhanced lipid peroxidation. It is anti-hyperlipoproteinemic (helps prevent abnormal lipid levels in the blood) and it is thought to help reduce the risk of atherosclerosis, sudden cardiac death, neurodegeneration, and various inflammatory disorders. EPA is also thought to be able to increase the beneficial effects of chemotherapy and may help to prevent cancer and attenuate responses of T-cells and macrophages. EPA also improves insulin sensitivity while at the same time inhibiting cell proliferation<sup>2</sup> and has been found to activate epithelial sodium channels. Recent studies suggest that oxidized (as opposed to native) EPA is responsible for anti-atherosclerotic, anti-inflammatory, and anti-proliferative effects.<sup>3</sup>

### Selected References:

1. C. Song, S. Zhao "Omega-3 fatty acid eicosapentaenoic acid. A new treatment for psychiatric and neurodegenerative diseases: a review of clinical investigations." *Expert Opin Investig Drugs*, Vol. 16(10) pp. 1627-1638, 2007
2. Masahiro Murata "Dual Action of Eicosapentaenoic Acid in Hepatoma Cells UP-REGULATION OF METABOLIC ACTION OF INSULIN AND INHIBITION OF CELL PROLIFERATION" *Journal of Biological Chemistry*, Vol. 276 pp. 31422-31428, 2001
3. Jason D. Morrow "Formation of Highly Reactive Cyclopentenone Isoprostane Compounds (A<sub>3</sub>/I<sub>3</sub>-Isoprostanes) *in Vivo* from Eicosapentaenoic Acid" *Journal of Biological Chemistry*, Vol. 283 pp. 12043-12055, 2008

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