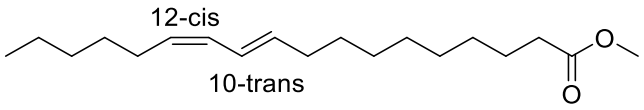
PRODUCT DATA SHEET

Methyl 10(E),12(Z)-octadecadienoate

Catalog No: 1254
Common Name: Methyl ester of CLA (10-*trans*,12-*cis*)
Source: synthetic
Solubility: ethanol, methanol, hexane chloroform
CAS No: 21870-97-3

Molecular Formula: $C_{19}H_{34}O_2$
Molecular Weight: 294
Storage: -20°C
Purity: TLC > 98%, GC > 98%; identity confirmed by MS
TLC System: hexane/ethyl ether (80:20 by vol.)
Appearance: liquid



Application Notes:

This product is a methyl ester and is ideal as a gas chromatography standard. 10(E),12(Z)-Octadecadienoic acid is a conjugated linoleic acid (CLA), an isomer of linoleic acid. CLA is found mostly in lipids originating in ruminant animals, including dairy products. It has several biological properties including anti-carcinogenic activity, suppressing *in vitro* growth of human melanoma, colorectal, and breast cancer cells, and exhibiting anti-atherogenic activity.[1] It is thought that CLA itself may not have anti-oxidant capabilities but may produce substances which protect cells from the detrimental effects of peroxides. Animals fed a diet containing high levels of CLA have been observed to have improved feed efficiency (lean body mass increased while body fat decreased) and this seems to be due, mainly or exclusively, to the 10(E),12(Z)-Octadecadienoic acid.[2] However, this isomer appears to increase oxidative stress and inflammatory biomarkers in obese men, which can lead to insulin resistance.[3,4] 10(E),12(Z)-Octadecadienoic acid increases LDL:HDL cholesterol and total:HDL cholesterol in humans.

Selected References:

1. Helen B. MacDonald "Conjugated Linoleic Acid and Disease Prevention: A Review of Current Knowledge" *Journal of the American College of Nutrition*, Vol. 19, No. 90002, 111S-118S, *2000*
2. Yanwen Wang and Peter JH Jones "Dietary conjugated linoleic acid and body composition." *The American Journal of Clinical Nutrition*, June, Vol. 79, No. 6, 1153S-1158S, *2004*
3. Ulf Risérus, MMed; Samar Basu, PhD; Stefan Jovinge, MD, PhD; Gunilla Nordin Fredrikson, PhD; Johan Ärnlöv, MD; Bengt Vessby, MD, PhD "Supplementation With Conjugated Linoleic Acid Causes Isomer-Dependent Oxidative Stress and Elevated C-Reactive Protein" *Circulation* 106:1925, *2002*
4. Soonkyu Chung, J. Mark Brown, J. Nathan Provo, Robin Hopkins and Michael K. McIntosh "Conjugated Linoleic Acid Promotes Human Adipocyte Insulin Resistance through NFκB-dependent Cytokine Production" The Journal of Biological Chemistry, September, Vol. 280: 38445, *2005*

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