

PRODUCT DATA SHEET

Hexadecenoic acid (*trans*-9)

Catalog number: 1147

Synonyms: C16:1 (*trans*-9) Fatty acid;
Palmitelaidic acid

Source: synthetic

Solubility: chloroform, hexane, ethyl ether

CAS number: 10030-73-6

Molecular Formula: C₁₆H₃₀O₂

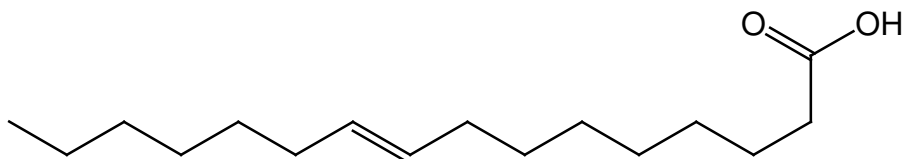
Molecular Weight: 254

Storage: -20°C

Purity: TLC: 99%, GC >99%

TLC System: hexane/ethyl ether/acetic acid
85:15:1

Appearance: solid



Application Notes:

This high purity monounsaturated fatty acid is ideal as a standard and for biological systems. This fatty acid is the *trans* isomer of the naturally occurring and more prevalent palmitoleic acid. Palmitelaidic acid occurs naturally in some bacteria and other microorganisms and it is the predominant *trans*-fatty acid present in ruminant milk fat isolated from cheese (about 0.07% of the total fatty acids) along with small amounts of other *trans*-fatty acids.¹ In some bacteria *cis-trans* isomerization of *cis*-9-hexadecenoic acid (palmitoleic acid) to *trans*-9-hexadecenoic acid (Palmitelaidic acid) can occur intracellularly without a shift in the bond position.² Palmitelaidic acid appears to be located exclusively at the sn-2 position of phosphatidylethanolamine in these bacteria. However, it does not appear that the *trans* fatty acid is synthesized *de novo* by *trans*-desaturation from hexadecanoic acid but rather isomerized from palmitoleic acid that is present in these bacteria.³ Palmitelaidic acid, along with other *trans*-fatty acids, has been identified as having a positive association with coronary artery disease and is therefore of concern in partially hydrogenated oils.

Selected References:

1. F. Destailats et al. "Study of individual *trans*- and *cis*-16:1 isomers in cow, goat, and ewe cheese fats by gas-liquid chromatography with emphasis on the *trans*-delta3 isomer" *Lipids*, vol. 35 pp. 1027-1032, 2000
2. N. Morita et al. "Evidence for *cis-trans* Isomerization of a Double Bond in the Fatty Acids of the Psychrophilic Bacterium *Vibrio* sp. Strain ABE-1" *Journal of Bacteriology*, vol. 175 pp. 916-918, 1993
3. H. Okuyama et al. "The *cis/trans* isomerization of the double bond of a fatty acid as a strategy for adaptation to changes in ambient temperature in the psychrophilic bacterium, *Vibrio* sp. strain ABE-1" *Biochimica et Biophysica Acta*, vol. 1084 pp. 13-20, 1991

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