

PRODUCT DATA SHEET

15-Methylhexadecanoic acid

Catalog number: 1606

Synonyms: iso-Heptadecanoic acid; *iso* C17
Fatty acid; 15-Methylpalmitic acid

Source: synthetic

Solubility: chloroform, ethyl ether, ethanol

CAS number: 1603-03-8

Molecular Formula: C₁₇H₃₄O₂

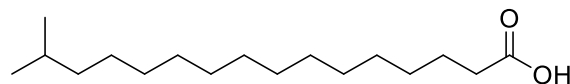
Molecular Weight: 270

Storage: -20°C

Purity: TLC > 98%; GC > 98%

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

Appearance: solid



Application Notes:

15-Methylhexadecanoic acid is present in many plants, animals, and other organisms and has a central role in the biosynthesis of other *iso*-fatty acids in *Stigmatella aurantiaca*.¹ In bacteria, the *iso*-fatty acid² content and composition can often be used as a taxonomic marker³ because *iso*-fatty acids are often found in bacteria but not commonly in other microorganisms. Some bacteria have *iso*- but not *anteiso*-fatty acids while others have *anteiso*- but not *iso*-fatty acids. *Iso*-fatty acids are found in small amounts in marine organisms and ruminants, mainly due to the food chain but also due to some *de novo* synthesis. *Iso*-fatty acids with a total even number of carbons are more common than a total odd number. Some waxy materials such as lanolin, as well as secretions near animal eyes, contain an unusually high amount of *iso*-fatty acids being employed for their lubricating effect. Branched chain fatty acids are critical for the regulation of fluidity in membranes and in membrane transport for many types of bacteria due to their having a significantly lower transition temperature than straight chain fatty acids. Some bacteria handle stress (such as heat and toxicity) by changing the ratio of *anteiso/iso*-fatty acids in the cell membrane. *Iso*-fatty acids have been found to be activators for various enzymes and systems and are used as protein modifiers. Although *iso*-even chain fatty acids are commonly derived from isobutyryl-CoA some bacteria derive all *iso*-even chain fatty acids via α -oxidation of *iso*-odd chain fatty acids.⁴ While *iso*-fatty acids are not usually found in plant oils the waxy surface of leaves can contain significant amounts of these fatty acids.

Selected References:

1. J. Dickschat et al. "Biosynthesis of *iso*-fatty acids in myxobacteria" *Organic and Biomolecular Chemistry*, Vol. 3 pp. 2824-2831, 2005
2. T. Kaneda "Iso- and Anteiso-Fatty Acids in Bacteria: Biosynthesis, Function, and Taxonomic Significance" *American Society for Microbiology*, Vol. 55(2) pp. 288-302, 1991
3. N. Jensen and M. Gross "Fast Atom Bombardment and Tandem Mass Spectrometry for Determining *Iso*- and *Anteiso*-Fatty Acids" *Lipids*, Vol. 21(5) pp. 362-365, 1986
4. H. Bode et al. "Biosynthesis of *Iso*-Fatty Acids in Myxobacteria: *Iso*-Even Fatty Acids Are Derived by α -Oxidation from *Iso*-Odd Fatty Acids" *J. Am. Chem. Soc.*, Vol. 127(2) pp 532-533, 2005

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