

## PRODUCT DATA SHEET

### Methyl 13-methyltetradecanoate

**Catalog number:** 1600

**Common Name:** iso-Pentadecanoic methyl ester; iso C15 Methyl ester

**Source:** synthetic

**Solubility:** chloroform, ethyl ether, ethanol

**CAS number:** 5129-59-9

**Molecular Formula:** C<sub>16</sub>H<sub>32</sub>O<sub>2</sub>

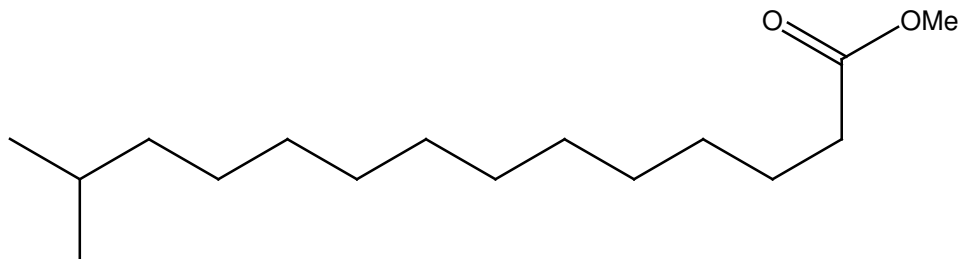
**Molecular Weight:** 256

**Storage:** -20°C

**Purity:** GC >98%

**TLC System:** hexane/ethyl ether, (80:20)

**Appearance:** liquid



### **Application Notes:**

13-methyltetradecanoic acid is found in some mammalian milk and fat tissues although it is not synthesized *de novo* in humans. It has been used as a structurally labeled marker for investigating the mobility of fatty acyl chains in adipose tissue.<sup>1</sup> In bacteria iso-fatty acid<sup>2</sup> content and composition can often be used as a taxonomic marker<sup>3</sup> 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. 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 *alpha*-oxidation of iso-odd chain fatty acids.<sup>4</sup>

### **Selected References:**

1. T. Foglia et al. "Fatty acid turnover rates in the adipose tissues of the growing chicken (*Gallus domesticus*)" *Lipids*, vol. 29(7) pp. 497-502, 1994
2. 1. 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. 2. 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. 3. H. Bode et al. "Biosynthesis of Iso-Fatty Acids in Myxobacteria: Iso-Even Fatty Acids Are Derived by  $\alpha$ -Oxidation from Iso-Odd Fatty Acids" *J. Am. Chem. Soc.*, Vol. 127(2) pp 532-533, 2005

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