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Product Information

(-)-Menthol

Product Number **M2780**

Storage Temperature 2-8 °C

Replacement for Product Number M 2258

Product Description

Molecular Formula: C₁₀H₂₀O

Molecular Weight: 156.3

CAS Number: 2216-51-5

Melting Point: 43-45 °C

Boiling Point: 212 °C¹

Density: 0.890 g/ml¹

Synonym: 3-p-menthanol, hexahydrothymol, (1 α ,2 β ,5 α)-5-methyl-2-(1-methylethyl)-cyclohexanol, peppermint camphor¹

Menthol is a terpene compound that occurs naturally in peppermint (*Mentha piperita*) oil and oils from other mint plants, such as *Mentha arvensis*. Menthol contains three asymmetric carbons in its cyclohexane ring, and thus exists as four pairs of optical isomers. The most common natural isomer is known as l-menthol. A review of the chemistry and biochemistry of menthol has been published.² A comparison of different methods for the extraction of menthol from *Mentha piperita* has been reported.³

The activation of non-selective cation channels in outside-out patches from cold-sensitive rat dorsal root ganglion neurons by menthol has been reported.⁴ Menthol has been postulated to activate the nonselective cationic channel TRPM8 in sensory neurons.⁵ The effect of menthol on κ -opioid receptor activation in mice has been studied.⁶

An investigation of long range (H,C) couplings in the NMR analysis of menthol that uses poly- γ -benzyl-glutamate has been described.⁷ A study of the oxidation of menthol and other organic compounds by various sulfo-polyoxometalate anion clusters has been reported.⁸

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in ethanol (100 mg/ml), yielding a clear, colorless solution.

References

1. The Merck Index, 12th ed., Entry# 5882.
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3. Ruiz del Castillo, M. L., et al., A comparative study of the ability of different techniques to extract menthol from *Mentha piperita*. *J. Chromatogr. Sci.*, **41(7)**, 385-389 (2003).
4. Reid, G., and Flonta, M. L., Ion channels activated by cold and menthol in cultured rat dorsal root ganglion neurones. *Neurosci. Lett.*, **324(2)**, 164-168 (2002).
5. Peier, A. M., et al., A TRP channel that senses cold stimuli and menthol. *Cell*, **108(5)**, 705-715 (2002).
6. Galeotti, N., et al., Menthol: a natural analgesic compound. *Neurosci. Lett.*, **322(3)**, 145-148 (2002).
7. Verdier, L., et al., Measurement of long range H,C couplings in natural products in orienting media: a tool for structure elucidation of natural products. *J. Magn. Reson.*, **163(2)**, 353-359 (2003).
8. Ruther, T., et al., Electrochemical investigation of photooxidation processes promoted by sulfo-polyoxometalates: coupling of photochemical and electrochemical processes into an effective catalytic cycle. *J. Am. Chem. Soc.*, **125(33)**, 10133-10143 (2003).

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