



Product Information

(±)-Geosmin

Product Number **G 5908**

Storage Temperature -0 °C

Product Description

Molecular Formula: C₁₂H₂₂O (pure compound)¹

Molecular Weight: 182.3¹

CAS Number: 16423-19-1

Boiling Point: 270 °C¹

Synonyms: *trans*-1,10-dimethyl-*trans*-decalin-9-ol, 1,10-*trans*-dimethyl-*trans*-(9)-decalol, [4S-(4 α ,4 α ,8 α)]-octahydro-4,8 α -dimethyl-4 α (2H)-naphthalenol, octahydro-4 α ,8 α -dimethyl-4 α (2H)-naphthol¹

This product is a 0.2% solution in methanol.

Geosmin is an aliphatic bicyclic compound whose (-) enantiomer occurs naturally in beet as its principal volatile aroma component. It has also been found to be present as an earthy odor contaminant in fish, beans, and water.¹ A study on the biosynthesis of geosmin in red beets (*Beta vulgaris L.*) has indicated that beets produce geosmin endogenously, by examination of mature beet roots and cultured beet seeds.²

A gene replacement study in *Streptomyces* has identified a gene that codes for a protein with two sesquiterpene synthase domains that participates in geosmin biosynthesis.³ An investigation of 26 *Streptomyces* strains examined their production of volatile metabolites, including geosmin, on yeast starch agar, which were subsequently analyzed by GC-MS.⁴

A protocol for the analysis of geosmin in beet roots by headspace solid-phase microextraction (HSPME) and

GC has been published.⁵ A study of low-temperature glassy carbon films for use in solid-phase microextraction has investigated the extraction of geosmin and other odor contaminants.⁶

Precautions and Disclaimer

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

References

1. The Merck Index, 12th ed., Entry# 4408.
2. Lu, G., et al., Biosynthetic origin of geosmin in red beets (*Beta vulgaris L.*). J. Agric. Food Chem., **51(4)**, 1026-1029 (2003).
3. Gust, B., et al., PCR-targeted *Streptomyces* gene replacement identifies a protein domain needed for biosynthesis of the sesquiterpene soil odor geosmin. Proc. Natl. Acad. Sci. USA, **100(4)**, 1541-1546 (2003).
4. Scholler, C. E., et al., Volatile metabolites from actinomycetes. J. Agric. Food Chem., **50(9)**, 2615-2621 (2002).
5. Lu, G., et al., Quantitative determination of geosmin in red beets (*Beta vulgaris L.*) using headspace solid-phase microextraction. J. Agric. Food Chem., **51(4)**, 1021-1025 (2003).
6. Giardina, M., and Olesik, S. V., Application of low-temperature glassy carbon films in solid-phase microextraction. Anal. Chem., **73(24)**, 5841-5851 (2001).

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