

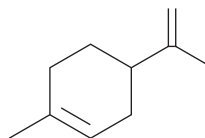
# PRODUCT INFORMATION



## (±)-Limonene

Item No. 25773

**CAS Registry No.:** 138-86-3  
**Formal Name:** 1-methyl-4-(1-methylethenyl)-cyclohexene  
**Synonyms:** (±)-Dipentene, DL-Limonene, NSC 844, NSC 21446  
**MF:** C<sub>10</sub>H<sub>16</sub>  
**FW:** 136.2  
**Purity:** ≥95%  
**Supplied as:** An oil  
**Storage:** -20°C  
**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

(±)-Limonene is supplied as an oil. A stock solution may be made by dissolving the (±)-limonene in the solvent of choice. (±)-Limonene is slightly soluble in chloroform.

### Description

(±)-Limonene is a cyclic monoterpene that has been found in various plant oils and *Cannabis* and has antifungal activity.<sup>1-4</sup> It completely inhibits mycelial growth and aflatoxin B<sub>1</sub> (Item No. 11293) production in *A. flavus* when used at concentrations of 500 and 250 ppm, respectively.<sup>2</sup> (±)-Limonene also inhibits the growth of various additional fungi *in vitro*, including *S. cerevisiae*, *R. glutinis*, and *K. thermotolerans* (MICs = 500-4,000 µg/ml).<sup>4</sup> It has been identified as a contact dermatitis allergen in honing oil, paint thinner, and turpentine.<sup>3,5,6</sup>

### References

1. Fishedick, J.T. Identification of terpenoid chemotypes among high (-)-*trans*- $\Delta^9$ -tetrahydrocannabinol-producing *Cannabis sativa* L. cultivars. *Cannabis Cannabinoid Res.* **2(1)**, 34-47 (2017).
2. Singh, P., Shukla, R., Prakash, B., et al. Chemical profile, antifungal, antiaflatoxigenic and antioxidant activity of *Citrus maxima* burm. and *Citrus sinensis* (L.) osbeck essential oils and their cyclic monoterpene, DL-limonene. *Food Chem. Toxicol.* **48(6)**, 1734-1740 (2010).
3. Cachão, P., Menezes Brandão, F., Carmo, M., et al. Allergy to oil of turpentine in Portugal. *Contact Dermatitis* **14(4)**, 205-208 (1986).
4. Ünal, M.Ü., Uçan, F., Şener, A., et al. Research on antifungal and inhibitory effects of DL-limonene on some yeasts. *Türk. J. Agric. For.* **36**, 576-582 (2012).
5. Rycroft, R.J. Allergic contact dermatitis from dipentene in honing oil. *Contact Dermatitis* **6(5)**, 325-329 (1980).
6. Calnan, C.D. Unusual hydroxycitronellal perfume dermatitis. *Contact Dermatitis* **5(2)**, 123 (1979).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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