

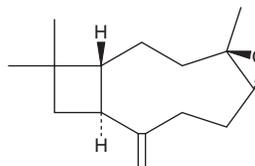
# PRODUCT INFORMATION



## (-)-Caryophyllene oxide

Item No. 21573

**CAS Registry No.:** 1139-30-6  
**Formal Name:** (1R,6R,10S)-4R,12,12-trimethyl-9-methylene-5-oxatricyclo[8.2.0.0<sup>4,6</sup>]dodecane  
**Synonyms:** BCP oxide,  $\beta$ -Caryophyllene epoxide,  $\beta$ -Caryophyllene oxide  
**MF:** C<sub>15</sub>H<sub>24</sub>O  
**FW:** 220.4  
**Purity:**  $\geq$ 98%  
**UV/Vis.:**  $\lambda_{\text{max}}$ : 242 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:**  $\geq$ 4 years



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

### Laboratory Procedures

(-)-Caryophyllene oxide is supplied as a crystalline solid. A stock solution may be made by dissolving the (-)-caryophyllene oxide in the solvent of choice. (-)-Caryophyllene oxide is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of (-)-caryophyllene oxide in these solvents is approximately 30, 10, and 20 mg/ml, respectively.

(-)-Caryophyllene oxide is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, (-)-caryophyllene oxide should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. (-)-Caryophyllene oxide has a solubility of approximately 0.25 mg/ml in a 1:3 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

(-)-Caryophyllene oxide is a bicyclic sesquiterpene and a metabolite of  $\beta$ -caryophyllene that has been found in *C. sativa* and has anticancer properties.<sup>1,2</sup> Unlike  $\beta$ -caryophyllene, (-)-caryophyllene oxide does not bind to the cannabinoid (CB) receptor CB<sub>2</sub> ( $K_i = >20 \mu\text{M}$ ). It induces calcium currents in HL-60 cells expressing CB<sub>2</sub> receptors but also does so in CB<sub>2</sub>-deficient cells. (-)-Caryophyllene oxide is cytotoxic to HepG2, AGS, HeLa, SNU-1 and SNU-16 cells ( $\text{IC}_{50}\text{s} = 3.95, 12.6, 13.55, 16.79, \text{ and } 27.39 \mu\text{M}$ , respectively).<sup>3</sup> It is the volatile component of *C. sativa* sensed by narcotic detection dogs.<sup>1</sup> Formulations containing (-)-caryophyllene have been used as flavoring agents.

### References

1. Gertsch, J., Leonti, M., Raduner, S., *et al.* Beta-caryophyllene is a dietary cannabinoid. *Proc. Natl. Acad. Sci. USA* **105**(26), 9099-9104 (2008).
2. Fidy, K., Fiedorowicz, A., Stradala, L., *et al.*  $\beta$ -caryophyllene and  $\beta$ -caryophyllene oxide-natural compounds of anticancer and analgesic properties. *Cancer Med.* **5**(10), 3007-3017 (2016).
3. Jun, N.J., Mosaddik, A., Moon, J.Y., *et al.* Cytotoxic activity of  $\beta$ -caryophyllene oxide isolated from Jeju guava (*Psidium cattleianum* Sabine) leaf. *Rec. Nat. Prod.* **5**(3), 242-246 (2011).

#### 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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