



# SZABO SCANDIC

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## Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

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- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

### SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

[mail@szabo-scandic.com](mailto:mail@szabo-scandic.com)

[www.szabo-scandic.com](http://www.szabo-scandic.com)

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

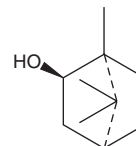
# PRODUCT INFORMATION



## (-)-Borneol

Item No. 23468

**CAS Registry No.:** 464-45-9  
**Formal Name:** (1S,2R,4S)-1,7,7-trimethyl-bicyclo[2.2.1]heptan-2-ol  
**Synonyms:** L-Borneol, (1S)-(-)-Borneol, *endo*-(-)-Borneol,  
**MF:** C<sub>10</sub>H<sub>18</sub>O  
**FW:** 154.3  
**Purity:** ≥95%  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥2 years



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

### Laboratory Procedures

(-)-Borneol is supplied as a crystalline solid. A stock solution may be made by dissolving the (-)-borneol in the solvent of choice. (-)-Borneol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of (-)-borneol in ethanol and DMSO is approximately 16 mg/ml and approximately 25 mg/ml in DMF.

(-)-Borneol is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, (-)-borneol should first be dissolved in DMF and then diluted with the aqueous buffer of choice. (-)-Borneol has a solubility of approximately 0.3 mg/ml in a 1:2 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

(-)-Borneol is a bicyclic monoterpene originally found in *A. canadense*.<sup>1,2</sup> It is a positive allosteric modulator of  $\alpha_1\beta_2\gamma_{2L}$  subunit-containing GABA<sub>A</sub> receptors with an EC<sub>50</sub> value of 237  $\mu$ M for human recombinant receptors expressed in *X. laevis* oocytes.<sup>1</sup> It increases the latency to first pentylenetetrazole- and maximal electroshock-induced seizure in mice when administered at doses of 50, 100, and 200 mg/kg.<sup>3</sup> (-)-Borneol (300 mg/kg) also increases the permeability of the blood-brain barrier and increases the concentration of cisplatin reaching tumors in a mouse model of glioblastoma multiforme.<sup>4</sup> Formulations containing (-)-borneol have been used as fragrance ingredients.

### Reference

1. Granger, R.E., Campbell, E.L., and Johnston, G.A.R. (+)- And (-)-borneol: Efficacious positive modulators of GABA action at human recombinant  $\alpha_1\beta_2\gamma_{2L}$  GABA<sub>A</sub> receptors. *Biochem. Pharmacol.* **69**, 1101-1111 (2005).
2. Power, F.B. and Lees, F.H. The constituents of the essential oil of *Asarum canadense*. *J. Chem. Soc., Trans.* **81**, 59-73 (1902).
3. Quintans, -J., L.J., Guimarães, A.G., Araújo, B.E.S., et al. Carvacrol, (-)-borneol and citral reduce convulsant activity in rodents. *J. Biotechnol.* **9(39)**, 6566-6572 (2010).
4. Yin, Y., Cao, L., Ge, H., et al. L-Borneol induces transient opening of the blood-brain barrier and enhances the therapeutic effect of cisplatin. *NeuroReport* **28(9)**, 506-513 (2017).

#### 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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#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD

ANN ARBOR, MI 48108 · USA

**PHONE:** [800] 364-9897

[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM