

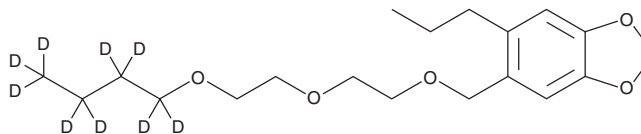
PRODUCT INFORMATION



Piperonyl Butoxide-d₉

Item No. 39581

CAS Registry No.: 1329834-53-8
Formal Name: 5-((2-(2-(butoxy-d₉)ethoxy)ethoxy)methyl)-6-propylbenzo[d][1,3]dioxole
Synonym: PBO-d₉
MF: C₁₉H₂₁D₉O₅
FW: 347.5
Chemical Purity: ≥95% (Piperonyl Butoxide)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₉); ≤1% d₀
Supplied as: A 1 mg/ml solution in acetonitrile
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Piperonyl butoxide-d₉ is intended for use as an internal standard for the quantification of piperonyl butoxide (Item No. 25820) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Piperonyl butoxide-d₉ is supplied as a solution in acetonitrile. To change the solvent, simply evaporate the acetonitrile under a gentle stream of nitrogen and immediately add the solvent of choice. Piperonyl butoxide-d₉ is slightly soluble in chloroform and methanol.

Description

Piperonyl butoxide is an insecticide synergist.^{1,2} It inhibits cytochrome P450 (CYP) activity in western corn rootworm (*D. virgifera*) abdominal microsomes in a concentration-dependent manner.³ Piperonyl butoxide increases the toxicity of the pyrethroid insecticide deltamethrin (Item No. 24172) to field-collected, deltamethrin-resistant strains of the bed bug *C. lectularius* by 5.6- to 176-fold when used at a concentration of 50 µg/µl.² Piperonyl butoxide also increases the toxicity of the organotin insecticide cyhexatin to fourth instar larvae of susceptible strains of the cotton leafworm *S. littoralis*.⁴ It is not toxic to the freshwater invertebrates *H. azteca*, *C. tentans*, and *L. variegatus* (LC₅₀s = 530, 2,740, and 3,540 µg/L, respectively) and reduces the toxicity of the organophosphate pesticides diazinon (Item No. 23769), chlorpyrifos (Item No. 21412), and azinphos-methyl.¹ Formulations containing piperonyl butoxide have been used in the control of agricultural, household, and veterinary pests.

References

1. Ankley, G.T. and Collyard, S.A. Influence of piperonyl butoxide on the toxicity of organophosphate insecticides to three species of freshwater benthic invertebrates. *Comp. Biochem. Physiol.* **110**(2), 149-155 (1995).
2. Romero, A., Potter, M.F., and Haynes, K.F. Evaluation of piperonyl butoxide as a deltamethrin synergist for pyrethroid-resistant bed bugs. *J. Econ. Entomol.* **102**(6), 2310-2315 (2009).
3. Scharf, M.E., Siegfried, B.D., Meinke, L.J., et al. Cytochrome P450-mediated N-demethylation activity and induction in insecticide-resistant and susceptible western corn rootworm populations (Coleoptera: Chrysomelidae). *Pesticide Biochem. Physiol.* **67**(2), 137-143 (2000).
4. Radwan, H.S.A., Riskallah, M.R., and El-Keie, I.A. Synergistic effects on the toxicity of organotins on cotton leafworms. *Toxicology* **14**(3), 193-198 (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.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 05/08/2026

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