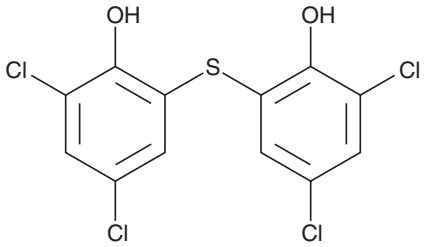
PRODUCT INFORMATION

Bithionol

Item No. 21844

CAS Registry No.:	97-18-7
Formal Name:	2,2'-thiobis[4,6-dichloro-phenol]
Synonyms:	CP 3438, NSC 9872, NSC 47129
MF:	$C_{12}H_6Cl_4O_2S$
FW:	356.1
Purity:	≥98%
UV/Vis.:	λ_{max}: 308 nm
Supplied as:	A crystalline solid
Storage:	Room temperature
Stability:	≥4 years



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

Laboratory Procedures

Bithionol is supplied as a crystalline solid. A stock solution may be made by dissolving the bithionol in the solvent of choice, which should be purged with an inert gas. Bithionol is soluble in the organic solvent DMSO at a concentration of approximately 20 mg/ml.

Description

Bithionol is an anthelmintic agent.[1] It is also an antagonist of N-acyl-phosphatidylethanolamine-hydrolyzing phospholipase D (NAPE-PLD; IC_{50} = 2.1 µM).[2] Bithionol is selective for NAPE-PLD over lipoprotein lipase (LPL) and carbonic anhydrase (CA; IC_{50}s = 46 and 178 µM, respectively). It inhibits efferocytosis in primary mouse bone marrow-derived macrophages (BMDMs) when used at a concentration of 10 µM.[3] Bithionol inhibits TNF-α-induced NF-κB transcriptional activity in a reporter assay using HEK293 cells (IC_{50} = 11.2 µM).[4] It inhibits caspase-3 activity by 90% in a cell-free assay when used at a concentration of 33 µM and prevents diphtheria toxin-, cholera toxin-, or *P. aeruginosa* exotoxin A-induced death in RAW 264.7 macrophages at the same concentration.[5] Bithionol inhibits the replication of Zika virus in primary human astrocytes and Vero E6 cells (EC_{50}s = 5.5 and 6.3 µM, respectively).[5] It decreases the number of *G. salaris* helminths in *G. salaris*-infected *O. mykiss* without inducing toxicity when used at concentrations of 12.5 or 20 mg/L.[1] Formulations containing bithionol have previously been used in soaps and cosmetics.

References

1. Santamarina, M.T., Tojo, J., Ubeira, F.M., *et al.* Anthelmintic treatment against *Gyrodactylus* sp. infecting rainbow trout *Oncorhynchus mykiss*. *Dis. Aquat. Org.* **10(1),** 39-43 (1991).
2. Aggarwal, G., Zarrow, J.E., Mashhadi, Z., *et al.* Symmetrically substituted dichlorophenes inhibit *N*-acyl-phosphatidylethanolamine phospholipase D. *J. Biol. Chem.* **295(21),** 7289-7300 (2020).
3. Zarrow, J.E., Alli-Oluwafuyi, A.M., Youwakim, C.M., *et al.* Small Molecule Activation of NAPE-PLD Enhances Efferocytosis by Macrophages. *ACS Chem. Biol.* **18(8),** 1891-1904 (2023).
4. Miller, S.C., Huang, R., Sakamuru, S., *et al.* Identification of known drugs that act as inhibitors of NF-κB signaling and their mechanism of action. *Biochem. Pharmacol.* **79(9),** 1272-1280 (2016).
5. Leonardi, W., Zilbermintz, L., Cheng, L.W., *et al.* Bithionol blocks pathogenicity of bacterial toxins, ricin, and Zika virus. *Sci. Rep.* **6:34475,** 1-12 (2016).

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