

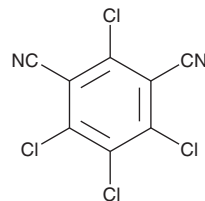
PRODUCT INFORMATION



Chlorothalonil

Item No. 24142

CAS Registry No.: 1897-45-6
Formal Name: 2,4,5,6-tetrachloro-1,3-benzenedicarbonitrile
Synonym: 2,4,5,6-Tetrachloroisophthalonitrile
MF: C₈Cl₄N₂
FW: 265.9
Purity: ≥98%
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Chlorothalonil is supplied as a solid. A stock solution may be made by dissolving the chlorothalonil in the solvent of choice, which should be purged with an inert gas. Chlorothalonil is slightly soluble in DMSO and methanol.

Description

Chlorothalonil is a broad-spectrum organochlorine fungicide that forms adducts with glutathione (GST; Item No. 10007461) and cysteine residues on enzymes leading to GST depletion and enzyme deactivation, respectively.¹ *In vitro*, it inhibits the growth of *C. albicans* and *C. orbiculare* fungi, *S. aureus* and *B. cereus* Gram-positive bacteria, and *E. coli* and *P. aeruginosa* Gram-negative bacteria (MICs = 0.7, 5, 1.3, 0.7, 0.5, and 1.7 µg/ml, respectively).^{2,3} *In vivo*, chlorothalonil (100 µg/ml) completely inhibits the growth of *P. infestans*, the tomato late blight pathogen, on tomato plants.⁴ It is toxic to aquatic organisms, including species of fish, crustaceans, molluscs, and algae with tenth percentile of toxicity values of 25.23, 40.59, 0.69, and 3.94 µg/L, respectively, as well as to other aquatic invertebrates.⁵ Chlorothalonil is carcinogenic in animal models and induces neoplasms in the forestomach and kidneys of rats when administered at a dose of 3.8 mg/kg per day, but it is not genotoxic.⁶ Formulations containing chlorothalonil have been used as fungicides in agriculture.

References

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3. Lee, J.Y., Moon, S.S., and Hwang, B.K. Isolation and antifungal activity of kakuol, a propiophenone derivative from *Asarum sieboldii* rhizome. *Pest. Manag. Sci.* **61(8)**, 821-825 (2005).
4. Lee, Y.M., Moon, J.S., Yun, B.-S., et al. Antifungal activity of CHE-23C, a dimeric sesquiterpene from *Chloranthus henryi*. *J. Agric. Food. Chem.* **57(13)**, 5750-5755 (2009).
5. DeLorenzo, M.E. and Fulton, M.H. Comparative risk assessment of permethrin, chlorothalonil, and diuron to coastal aquatic species. *Mar. Pollut. Bull.* **64(7)**, 1291-1299 (2012).
6. Wilkinson, C.F. and Killeen, J.C. A mechanistic interpretation of the oncogenicity of chlorothalonil in rodents and an assessment of human relevance. *Regul. Toxicol. Pharmacol.* **24(1 Pt 1)**, 69-84 (1996).

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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