

Tributyl phosphate

Chemical Properties

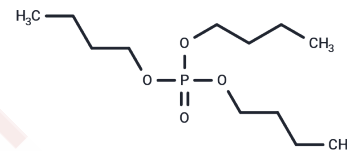
CAS No. : 126-73-8

Formula: C₁₂H₂₇O₄P

Molecular Weight: 266.31

Storage: Pure form: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.



Biological Description

Description	Tributyl phosphate (NSC 8484, Tributyl phosphate) is a trialkyl phosphate that is often used as a solvent, plasticizer, and extractant, including in extraction processes involving transuranic elements and rare earth metals.
Targets(IC50)	Others
In vitro	In GC-2 mouse spermatocyte cells, Tributyl phosphate exposure (10, 50, 200μM for 24h) reduced cell viability, induced apoptosis, and decreased the BCL2/BAX ratio. At 50 and 200μM, Tributyl phosphate also triggered reactive oxygen species (ROS) accumulation and a loss of mitochondrial membrane potential, indicating oxidative stress-mediated cytotoxicity[1].
In vivo	Male ICR mice orally administered TBP (50 and 100mg/kg/day for 35 days) showed reduced sperm count and motility, testicular structural damage, and increased testicular cell apoptosis. Tributyl phosphate also caused gut microbiota dysbiosis, increased the abundance of Prevotellaceae (negatively correlated with sperm motility), and promoted Th17 cell infiltration in the small intestine along with IL-17A signaling activation in the testes, suggesting that Tributyl phosphate induces male reproductive toxicity via the gut-testis axis, oxidative stress, and inflammation[1].

Solubility Information

Solubility	DMSO: 5 mg/mL (18.78 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.755 mL	18.7751 mL	37.5502 mL
5 mM	0.751 mL	3.755 mL	7.510 mL
10 mM	0.3755 mL	1.8775 mL	3.755 mL
50 mM	0.0751 mL	0.3755 mL	0.751 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Wang J, Cui Y, Wang Y, Li Y, He Y, Luo T. Tributyl phosphate Induced Male Reproductive Toxicity in Mice. *Environ Sci Technol.* 2025 Feb 18;59(6):3000-3012.

Tong W, et al. Tributyl phosphate degradation and phosphorus immobilization by MnO₂: Reaction condition optimization and mechanism exploration. *J Hazard Mater.* 2022 Jun 15;432:128725.

Zhang X, et al. Tributyl phosphate can inhibit the feeding behavior of rotifers by altering the axoneme structure, neuronal coordination and energy supply required for motile cilia. *J Hazard Mater.* 2023 Oct 5;459:132224.

Chakraborty G, et al. Tributyl phosphate inhibits neurogenesis and motor functions during embryonic development in zebrafish. *Aquat Toxicol.* 2025 Feb;279:107203.

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