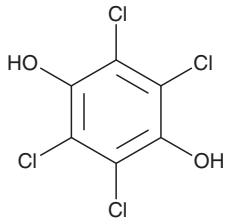
PRODUCT INFORMATION

Tetrachlorohydroquinone

Item No. 23231

CAS Registry No.:	87-87-6
Formal Name:	2,3,5,6-tetrachloro-1,4-benzenediol
Synonyms:	NSC 4858, NSC 100888, TCHQ
MF:	$C_6H_2Cl_4O_2$
FW:	247.9
Purity:	≥98%
UV/Vis.:	λ_{max}: 309 nm
Supplied as:	A crystalline 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

Tetrachlorohydroquinone (TCHQ) is supplied as a crystalline solid. A stock solution may be made by dissolving the TCHQ in the solvent of choice, which should be purged with an inert gas. TCHQ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of TCHQ in these solvents is approximately 30 mg/ml.

TCHQ is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, TCHQ should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. TCHQ has a solubility of approximately 0.5 mg/ml in a 1:1 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

TCHQ is a metabolite of the organochlorine biocide pentachlorophenol.[1] It is cytotoxic to RTL-W1 rainbow trout liver cells (EC_{50} = 1.55 µM in a neutral red assay). TCHQ increases production of reactive oxygen species (ROS), inhibits apoptosis, and induces loss of the mitochondrial membrane potential and necrosis in splenocytes.[2] *In vivo*, TCHQ induces glutathione (GSH) depletion in mouse liver.[3]

References

1. Pietsch, C., Hollender, J., Dorusch, F., *et al.* Cytotoxic effects of pentachlorophenol (PCP) and its metabolite tetrachlorohydroquinone (TCHQ) on liver cells are modulated by antioxidants. *Cell Biol. Toxicol.* **30(4)**, 233-252 (2014).
2. Chen, H.-M., Zhu, B.-Z., Chen, R.-J., *et al.* The pentachlorophenol metabolite tetrachlorohydroquinone induces massive ROS and prolonged p-ERK expression in splenocytes, leading to inhibition of apoptosis and necrotic cell death. *PLoS One* **9(2)**, e89483 (2014).
3. Wang, Y.-J., Ho, Y.-S., Chu, S.-W., *et al.* Induction of glutathione depletion, p53 protein accumulation and cellular transformation by tetrachlorohydroquinone, a toxic metabolite of pentachlorophenol. *Chem. Biol. Interact.* **105(1)**, 1-16 (1997).

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