

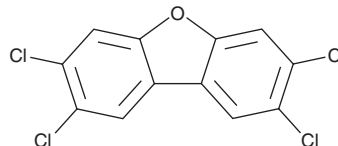
PRODUCT INFORMATION



2,3,7,8-Tetrachlorodibenzofuran

Item No. 38393

CAS Registry No.: 51207-31-9
Synonyms: PCDF 83, 2,3,7,8-TCDF, TCDF
MF: $C_{12}H_4Cl_4O$
FW: 306.0
Purity: $\geq 90\%$
Supplied as: A solid
Storage: $-20^{\circ}C$
Stability: ≥ 4 years



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

Laboratory Procedures

2,3,7,8-Tetrachlorodibenzofuran is supplied as a solid. A stock solution may be made by dissolving the 2,3,7,8-tetrachlorodibenzofuran in the solvent of choice, which should be purged with an inert gas. 2,3,7,8-Tetrachlorodibenzofuran is slightly soluble in DMSO (heated) and methanol (heated).

Description

2,3,7,8-Tetrachlorodibenzofuran is a polychlorinated dibenzofuran and dioxin.¹ It is a byproduct in the synthesis of polychlorinated biphenyls and produced by municipal waste incinerators and open burn sites.^{1,2} 2,3,7,8-Tetrachlorodibenzofuran (1 $\mu g/kg$ per day) increases hepatic levels of triglycerides, phospholipids, and ceramides and induces hepatic endoplasmic reticulum stress in mice.³ It induces weight loss and mortality in guinea pigs when administered at a dose of 10 $\mu g/kg$.⁴ Intraperitoneal administration of 2,3,7,8-tetrachlorodibenzofuran (0.4 mg/kg) increases the number of fetal mice with cleft palates, as well as induces kidney swelling and increases the number of reabsorbed or dead fetuses in pregnant dams.⁵

References

1. Moron, M., Sundström, G., and Wachtmeister, C.A. Polychlorinated biphenyls. VI. 2,3,7,8-tetrachlorodibenzofuran, a critical byproduct in the synthesis of 2,2',4,4',5,5'-hexachlorobiphenyl by the Ullmann reaction. *Acta Chem. Scand.* **27(8)**, 3121-3122 (1973).
2. Harnly, M., Stephens, R., McLaughlin, C., *et al.* Polychlorinated dibenzo-p-dioxin and dibenzofuran contamination at metal recovery facilities, open burn sites, and a railroad car incineration facility. *Environ. Sci. Technol.* **29(3)**, 667-684 (1995).
3. Yuan, P., Dong, M., Lei, H., *et al.* Targeted metabolomics reveals that 2,3,7,8-tetrachlorodibenzofuran exposure induces hepatic steatosis in male mice. *Environ. Pollut.* **259**, 113820 (2020).
4. Ioannou, Y.M., Birnbaum, L.S., and Matthews, H.B. Toxicity and distribution of 2,3,7,8-tetrachlorodibenzofuran in male guinea pigs. *J. Toxicol. Environ. Health* **12(4-6)**, 541-553 (1983).
5. Hassoun, E., d'Argy, R., and Dencker, L. Teratogenicity of 2,3,7,8-tetrachlorodibenzofuran in the mouse. *J. Toxicol. Environ. Health* **14(2-3)**, 337-351 (1984).

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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