

# Product data sheet



MedKoo Cat#: 591686 Name: Diphenyl ether CAS: 101-84-8 Chemical Formula: C <sub>12</sub> H <sub>10</sub> O Exact Mass: 170.0732 Molecular Weight: 170.211	
Product supplied as: Powder	
Purity (by HPLC): ≥ 98%	
Shipping conditions: Ambient temperature	
Storage conditions: Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.	

## 1. Product description:

Diphenyl ether is the organic compound with the formula (C<sub>6</sub>H<sub>5</sub>)<sub>2</sub>O. The molecule is subject to reactions typical of other phenyl rings, including hydroxylation, nitration, halogenation, sulfonation, and Friedel–Crafts alkylation or acylation.

## 2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

## 3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
TBD	TBD	TBD

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	5.88 mL	29.38 mL	58.75 mL
5 mM	1.18 mL	5.88 mL	11.75 mL
10 mM	0.59 mL	2.94 mL	5.88 mL
50 mM	0.12 mL	0.59 mL	1.18 mL

## 5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

## 6. Recommended literature which reported protocols for in vitro and in vivo study

### In vitro study

1. Steil GJ, Buzzo JLA, de Oliveira Ribeiro CA, Filipak Neto F. Polybrominated diphenyl ethers BDE-47 and BDE-99 modulate murine melanoma cell phenotype in vitro. *Environ Sci Pollut Res Int.* 2022 Feb;29(8):11291-11303. doi: 10.1007/s11356-021-16455-0. Epub 2021 Sep 17. PMID: 34535858.

2. Lefèvre PLC, Nardelli TC, Son WY, Sadler AR, Rawn DFK, Goodyer C, Robaire B, Hales BF. Polybrominated Diphenyl Ethers in Human Follicular Fluid Dysregulate Mural and Cumulus Granulosa Cell Gene Expression. *Endocrinology.* 2021 Mar 1;162(3):bqab003. doi: 10.1210/endocr/bqab003. PMID: 33543239; PMCID: PMC7853176.

### In vivo study

1. Ye C, Xiong W, Shi S, Shi J, Yang W, Zhang X. Biomarker Responses, Gene Expression Alterations, and Histological Changes in Zebrafish (*Danio rerio*) After In Vivo Exposure to Polychlorinated Diphenyl Ethers. *Front Physiol.* 2022 Jun 3;13:907906. doi: 10.3389/fphys.2022.907906. Erratum in: *Front Physiol.* 2022 Aug 19;13:1000714. PMID: 35721562; PMCID: PMC9203962.

2. Kozlova EV, Chinthirla BD, Pérez PA, DiPatrizio NV, Argueta DA, Phillips AL, Stapleton HM, González GM, Krum JM, Carrillo V, Bishay AE, Basappa KR, Currás-Collazo MC. Maternal transfer of environmentally relevant polybrominated diphenyl ethers (PBDEs) produces a diabetic phenotype and disrupts glucoregulatory hormones and hepatic endocannabinoids in adult mouse female offspring. *Sci Rep.* 2020 Oct 22;10(1):18102. doi: 10.1038/s41598-020-74853-9. PMID: 33093533; PMCID: PMC7582149.

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## 7. Bioactivity

### Biological target:

Diphenyl ether is the organic compound with the formula  $(C_6H_5)_2O$ .

### In vitro activity

In the present study, this study investigated the effects of polybrominated diphenyl ethers (PBDEs) used as flame retardants on phenotypic features of melanoma cells that are important for cancer. Murine melanoma B16-F1 (less metastatic) and B16-F10 (more metastatic) cells were exposed to 0.01-1.0 nM of BDE-47 (2,2',4,4'-tetrabromodiphenyl ether), BDE-99 (2,2',4,4',5-pentabromodiphenyl ether), and the mixture of both (at 0.01 nM) for 24 h (acute exposure) and 15 days (chronic exposure). The polybrominated diphenyl ethers (PBDEs) did not affect cell viability but led to increased drug efflux transporter activity, cell migration, and colony formation, as well as overexpression of Abcc2 (ATP-binding cassette subfamily C member 2), Mmp-2 (matrix metalloproteinase-2), Mmp-9 (matrix metalloproteinase-9), and Tp53 (tumor protein p53) genes and downregulation of Timp-3 (tissue inhibitor of metalloproteinase 3) gene in B16-F10 cells.

Reference: Environ Sci Pollut Res Int. 2022 Feb;29(8):11291-11303. <https://pubmed.ncbi.nlm.nih.gov/34535858/>

### In vivo activity

Specifically, except for 4,4'-di-CDE, the other mid-high concentration of PCDE (polychlorinated diphenyl ethers) exposure groups inhibited the level of SOD and CAT on zebrafish livers, and the same inhibition was also manifested in the extension of exposure time. Therefore, this study can conclude a conclusion that the low-chlorinated PCDEs may more easily induce ROS in fish liver, resulting in great damage to the antioxidation system, attacking the cell membrane, and then exacerbating hepatocyte damages.

Reference: Front Physiol. 2022 Jun 3;13:907906. <https://pubmed.ncbi.nlm.nih.gov/35721562/>

*Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.*