

# PRODUCT INFORMATION



## IPPD

Item No. 40725

CAS Registry No.: 101-72-4

Formal Name: N<sup>1</sup>-(1-methylethyl)-N<sup>4</sup>-phenyl-1,4-benzenediamine

Synonyms: p-(Isopropylamino)diphenylamine,  
N-Isopropyl-N'-phenyl-p-phenylenediamine,  
NA 4010, NSC 41029

MF: C<sub>15</sub>H<sub>18</sub>N<sub>2</sub>

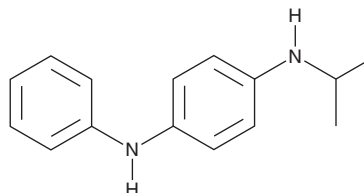
FW: 226.3

Purity: ≥95%

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

IPPD is supplied as a solid. A stock solution may be made by dissolving the IPPD in the solvent of choice, which should be purged with an inert gas. IPPD is soluble (≥10 mg/ml) in DMSO and sparingly soluble (1-10 mg/ml) in ethanol.

### Description

IPPD is an aromatic amino antioxidant and antiozonant.<sup>1,2</sup> It reduces the activity of superoxide dismutase (SOD) and catalase (CAT) in zebrafish larvae.<sup>1</sup> IPPD (300 µg/L) reduces heart rate and induces cardiac malformations in zebrafish embryos, and it reduces the swimming speed of zebrafish larvae when used at concentrations of 2 and 300 µg/L but not 20 µg/L. It has been found in rubber boots, particulate matter 2.5 (PM<sub>2.5</sub>), wastewater influent, effluent, and biosolids, and human breast milk.<sup>3-6</sup>

### References

1. Rao, C., Chu, F., Fang, F., *et al.* Toxic effects and comparison of common amino antioxidants (AAOs) in the environment on zebrafish: A comprehensive analysis based on cells, embryos, and adult fish. *Sci. Total Environ.* **924**, 171678 (2024).
2. Huntink, N.M., Datta, R.N., Talma, A., *et al.* Ozonolysis of model olefins—efficiency of antiozonants. *J. Appl. Polym. Sci.* **100**, 853–866 (2006).
3. Ikarashi, Y. and Kaniwa, M. Determination of p-phenylenediamine and related antioxidants in rubber boots by high performance liquid chromatography. Development of an analytical method for N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine. *J. Health Sci.* **46(6)**, 467-473 (2000).
4. Wang, W., Cao, G., Zhang, J., *et al.* Beyond substituted p-phenylenediamine antioxidants: Prevalence of their quinone derivatives in PM<sub>2.5</sub>. *Environ. Sci. Technol.* **56(15)**, 10629-10637 (2022).
5. Cao, G., Wang, W., Zhang, J., *et al.* Occurrence and fate of substituted p-phenylenediamine-derived quinones in Hong Kong wastewater treatment plants. *Environ. Sci. Technol.* **57(41)**, 15635-15643 (2023).
6. Liang, B., Ge, J., Deng, Q., *et al.* Occurrence of multiple classes of emerging synthetic antioxidants, including p-phenylenediamines, diphenylamines, naphthylamines, macromolecular hindered phenols, and organophosphites, in human milk: Implications for infant exposure. *Environ. Sci. Technol. Lett.* **11(3)**, 259–265 (2024).

#### 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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