



Product Information

Hexamethylphosphoramide

Product Number **H 3380**
Store at Room Temperature

Product Description

Molecular Formula: $C_6H_{18}N_3OP$
Molecular Weight: 179.2
CAS Number: 680-31-9
Melting Point: 7.20 °C¹
Boiling Point: 235 °C (760 atm)¹
Density: 1.03 g/ml¹
Synonyms: HMPA; HMPT; hexamethylphosphoric triamide¹

Hexamethylphosphoramide (HMPA) is an aprotic organic solvent that is used in the synthesis of organic compounds. It is also utilized as a solvent for polymers, a polymerization catalyst, a thermal stabilizer in polystyrene, and as a protectant from UV light degradation in polyvinyl and polyolefin resins.¹

The role of HMPA in the preparation of seven-membered cyclic amino alcohols by the Sml_2 -promoted pinacol-type cyclization has been investigated.² The use of tetrahydrofuran that contains HMPA in the synthesis of chaetomelic acid A and related compounds has been reported.³ The dehydration of ninhydrin in HMPA has been studied.⁴ The synthesis of three-dimensional zinc phosphate frameworks using HMPA has been described.⁵

The genetic rearrangements in postmeiotic male *Drosophila* germ cells after treatment with HMPA have been investigated.⁶ HMPA and several of its metabolites have been studied in *Salmonella typhimurium* by plate incorporation, preincubation, and suspension assays to investigate their mutagenic activity.⁷ HMPA has been used to treat human hepatoma (Hep G2) cells to probe its genotoxicity using a single cell gel electrophoresis assay.⁸

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is miscible in chloroform (0.083 ml/ml, v/v), yielding a clear to slightly hazy, colorless solution.

References

1. The Merck Index, 12th ed., Entry# 4761.
2. Riber, D., et al., Studies on the Sml_2 -promoted pinacol-type cyclization: synthesis of the hexahydroazepine ring of balanol. *J. Org. Chem.*, **65(17)**, 5382-5390 (2000).
3. Ratemi, E. S., et al., Synthesis of Protein Farnesyltransferase and Protein Geranylgeranyltransferase Inhibitors: Rapid Access to Chaetomelic Acid A and Its Analogues. *J. Org. Chem.*, **61(18)**, 6296-6301 (1996).
4. Schertz, T. D., et al., Zwitterion radicals and anion radicals from electron transfer and solvent condensation with the fingerprint developing agent ninhydrin. *J. Org. Chem.*, **66(23)**, 7596-7603 (2001).
5. Neeraj, S., and Cheetham, A. K., Synthesis of open-framework zinc phosphates from organophosphorus amides. *Chem. Commun. (Camb.)*, **(16)**, 1738-1739 (2002).
6. Aguirrezabalaga, I., et al., The cross-linking agent hexamethylphosphoramide predominantly induces intra-locus and multi-locus deletions in postmeiotic germ cells of *Drosophila*. *Genetics*, **139(2)**, 649-658 (1995).
7. Sarrif, A. M., et al., Evaluation of hexamethylphosphoramide for gene mutations in *Salmonella typhimurium* using plate incorporation, preincubation, and suspension assays. *Mutat. Res.*, **380(1-2)**, 167-177 (1997).
8. Uhl, M., et al., Evaluation of the single cell gel electrophoresis assay with human hepatoma (Hep G2) cells. *Mutat. Res.*, **468(2)**, 213-225 (2000).

GCY/NSB 1/04

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