



>>Entry Name: Hexamethylphosphoric triamide, 9CI

Synonym(s): Hexamethylphosphoramidate. Tris(dimethylamido)oxophosphorus(V). Hempa. HMPT. HMPA

CAS Registry Number: 680-31-9

Related CAS Registry Numbers(s): 51219-90-0

OP(NMe<sub>2</sub>)<sub>3</sub>

Molecular Formula: C<sub>6</sub>H<sub>18</sub>N<sub>3</sub>OP

Molecular Weight: 179.201

Accurate Mass: 179.118749

Percentage Composition: C 40.22%; H 10.12%; N 23.45%; O 8.93%; P 17.28%

Use/Importance: Widely used as polar, aprotic solvent which activates the synth. and use of organometallic compds. (e.g. Li, Mg derivs.). Widespread use in organic synthesis: converts benzamides into dimethylaminoquinolines, dehydrating agent for alcohols and amides. Used in combination with SOCl<sub>2</sub> for synth. of alkyl chlorides. Used for extraction separation of metals (CHCl<sub>3</sub>, as SCN-complexes); photometric detn. of Os, Ru, Fe(III), Ti

Physical Description: Liq.

Melting Point: Mp 7°

Boiling Point: Bp 235°. Bp<sub>15</sub> 115°. Bp<sub>1</sub> 68-70°

Solubility: Misc. H<sub>2</sub>O

Density: d<sub>4</sub><sup>20</sup> 1.025

Refractive Index: n<sub>D</sub><sup>20</sup> 1.4582

Other Data: Dielectric constant ε 29.6; viscosity 3.10 cP

Hazard & Toxicity: Poss. human carcinogen. Eye and skin irritant. LD<sub>50</sub> (rat, orl) 2525 mg/kg. Exp. carcinogen. Exp. reprod. effects

Aldrich: H1160-2

Fluka: 52730

Sigma: H6257

#### References:

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