



>>Entry Name: Silver phosphate ($\text{Ag}_3(\text{PO}_4)$)

Synonym(s): Trisilver(1+) phosphate, 9Cl. Silver orthophosphate

CAS Registry Number: 7784-09-0

Ag_3PO_4

Molecular Formula: $\text{Ag}_3\text{O}_4\text{P}$

Molecular Weight: 418.576

Accurate Mass: 415.668698

Percentage Composition: Ag 77.31%; O 15.29%; P 7.40%

Source/Synthesis: Synth. from $\text{Ag}_2\text{O} + \text{NH}_4\text{H}_2\text{PO}_4$ at 400° ; AgNO_3 aq. + Na_2HPO_4 or $(\text{NH}_4)_2\text{HPO}_4$ aq.

Use/Importance: Commercially available

Physical Description: Yellow cubes (NH_3 aq.)

Melting Point: Mp 1012° ($980\text{--}990^\circ$)

Other Data: Suspensions photochemically release O from H_2O more efficiently than AgCl in phosphate buffer. At 520° (505°) undergoes transition to high temp. form with fcc cubic lattice. V. sensitive to light, becoming red

Aldrich: 33738-2

Fluka: 85250

References:

Gmelin Handbook Inorg. Chem., Syst. No. 6, 1974, **B4**, 7

Sokolova, I.D. *et al.*, *Dokl. Akad. Nauk SSSR, Ser. Khim.*, 1975, **221**, 1126; *Dokl. Phys. Chem. (Engl. Transl.)*, 1975, **221**, 378, (props)

Dickinson, T. *et al.*, *J. Solid State Chem.*, 1975, **13**, 237, (pe)

Masse, R. *et al.*, *Z. Kristallogr., Kristallgeom., Kristallphys., Kristallchem.*, 1976, **144**, 76, (cryst struct)

Ng, H.N. *et al.*, *Acta Cryst. B*, 1978, **34**, 898, (synth, cryst struct)

Newsam, J.M. *et al.*, *Solid State Ionics*, 1980, **1**, 377; 1984, **14**, 81, (nd, struct)

Hirono, T. *et al.*, *J. Appl. Phys.*, 1984, **55**, 781, (synth, uv, struct, props)

Prabhakar, S. *et al.*, *Chem. Phys. Lett.*, 1987, **139**, 96, (P-31 nmr)