>>**Entry Name: Ammonium magnesium phosphate (1:1:1),** 9Cl, 8Cl
Synonym(s): Phosphoric acid, ammonium magnesium salt (1:1:1), 8Cl

CAS Registry Number: 7785-21-9
Related CAS Registry Numbers(s): 19004-55-8
$Mg(NH_4)PO_4$

Molecular Formula: H_4MgNO_4P
Molecular Weight: 137.315
Accurate Mass: 136.972838
Percentage Composition: H 2.94%; Mg 17.70%; N 10.20%; O 46.61%; P 22.56%
General Statement: The anhydrous salt does not appear to have been obtained. Occurs as hexahydrate
Source/Synthesis: Synth. from $Mg(OH)_2$-H_3PO_4-NH_4OH and Na_3PO_4-$MgSO_4$-NH_4OH. Also $MgHPO_4 + NH_3$. Occurs in human urinary calculi, and also guano
Use/Importance: Precipitated during course of gravimetric estimation of Mg. Ignited to $Mg_2P_2O_7$. Agricultural fertiliser
Physical Description: Amorph. powder
Other Data: A trihydrate has been reported

Fluka: 9884

>>**Derivative:** Monohydrate

CAS Registry Number: 16674-60-5
Source/Synthesis: Obt. from hexahydrate at 80-100°. May be cryst. from aq. solns. containing $MgCl_2$ and $[NH_4]H_2PO_4$
Solubility: Sol. acids; prac. insol. H_2O (0.023 g per 100 cm^3 at 0°), (0.02 g per 100 cm at 80°); insol. EtOH
Other Data: Stable below 130-150°

>>**Derivative:** Hexahydrate

CAS Registry Number: 13478-16-5
Physical Description: White powder or elongated platelets
Other Data: Orthorhombic with regular $PO_4^{3(-)}$ tetrahedra and distorted $Mg(H_2O)_6^{2(+)}$ octahedra. A slurry in H_2O at 95° → the monohydrate. When heated dry, loses H_2O and NH_3 in three overlapping processes

>>**Variant:** Mineral-form
Synonym(s): Struvite. Guanite

CAS Registry Number: 15490-91-2
Molecular Formula: H_4MgNO_4P
Molecular Weight: 137.315
Accurate Mass: 136.972838
Percentage Composition: H 2.94%; Mg 17.70%; N 10.20%; O 46.61%; P 22.56%
General Statement: Essentially the hexahydrate
Source/Synthesis: Found in human urinary sediments; peat beds; phosphate caves; diatomites, and bird and bat guano deposits in Chile and Australia. Associated with Newberyite and Brushite
Physical Description: Colourless to pale yellowish-brown, transparent to translucent, brittle, bipyramidal cryst.

References:

Dana's System of Mineralogy, 7th Ed., Wiley, N.Y., 1951, 715, *(mineral)*
Corbridge, C.E. *et al.*, *J.C.S.*, 1954, 493, *(ir)*
Swanson, H.E. *et al.*, *NBS Monogr. (U.S.)*, 1964, **3**, 41, *(cryst struct, hexahydrate)*
Ando, J. *et al.*, *Bull. Chem. Soc. Jpn.*, 1968, **41**, 1716, *(synth, props)*
Fraissard, J. *et al.*, *Bull. Soc. Chim. Fr.*, 1968, 1756, *(ir, struct)*
Etienne, J.J. *et al.*, *Bull. Soc. Chim. Fr.*, 1968, 1805, *(props)*
Sutar, D.J. *et al.*, *J.C.S.(A)*, 1968, 1143, *(props)*
Bridger, G.L.*, New Fert. Mater.*, 1968, 256, *(uses)*
Berényi, M.*, Talanta*, 1969, **16**, 101, *(props)*
Burriel-Marti, F. *et al.*, *Inf. Quim. Anal.*, 1970, **24**, 84; *CA*, 1971, **74**, 9130, *(synth, ir, dta)*
Rothbaum, H.P. *et al.*, *N.Z. J. Sci.*, 1973, **16**, 539, *(synth, props)*
Nabiev, M.N. *et al.*, *Zh. Prikl. Khim. (Leningrad)*, 1973, **46**, 2377; *J. Appl. Chem. USSR (Engl. Transl.)*, 1973, **46**, 2532, *(synth, props)*
Banks, E. *et al.*, *Inorg. Chem.*, 1975, **14**, 1634, *(synth, ir, cryst struct)*
Paulik, F. *et al.*, *J. Therm. Anal.*, 1975, **8**, 557; 567, *(thermal dec, hexahydrate)*
Saibova, M.T. *et al.*, *Zh. Neorg. Khim.*, 1975, **20**, 1134, *(dta)*
Abbona, F. *et al.*, *J. Cryst. Growth*, 1979, **46**, 339; 1986, **74**, 581, *(synth, cryst struct, morphology)*
Abbona, F. *et al.*, *Acta Cryst. B*, 1984, **40**, 223, *(cryst struct)*
Abbona, F. *et al.*, *Cryst. Res. Technol.*, 1985, **20**, 133, *(synth, morphology)*
Ferraris, G. *et al.*, *Acta Chem. Scand., Ser. B*, 1986, **42**, 253, *(cryst struct, nd, hexahydrate)*
Abdelrazig, B.E.I. *et al.*, *Thermochim. Acta*, 1988, **129**, 197, *(props)*

https://www.baizuoyan.com - CopyRight ©baizuoyan