>>**Entry Name: Copper phosphate ($Cu_3(PO_4)_2$)**
Synonym(s): Copper(2+) phosphate (3:2). Cupric phosphate

CAS Registry Number: 7798-23-4
Related CAS Registry Numbers(s): 111542-99-5
Extra CAS Registry Numbers(s): 10103-48-7
$Cu_3(PO_4)_2$

Molecular Formula: $Cu_3O_8P_2$
Molecular Weight: 380.581
Accurate Mass: 378.725638
Percentage Composition: Cu 50.09%; O 33.63%; P 16.28%
General Statement: Triclinic. Cu atoms in edge-sharing pairs of polyhedra. Cu(1) possesses sl. distorted sq. planar coord. with Cu-O 2 x 192.4 pm, and 2 x 198.2 pm. Cu(2) has irregular coordination polyhedron with 5 oxygens (4 at 196.5, and 1 at 226.5 pm). PO_4 tetrahedra are sl. distorted with P-O 151-157 pm, OPO 104.6-111.5°
Source/Synthesis: Synth. from CuO + Ammonium phosphate ($(NH_4)_2HPO_4$) HTM76-I at 1000°
Physical Description: Blue powder or cryst. (H_3PO_4 aq.)

>>**Derivative:** Monohydrate

CAS Registry Number: 27176-16-5
Source/Synthesis: Synth. from $Cu(HPO_4)_2.H_2O$ at 120°, or $Cu(NO_3)_2$ + H_3PO_4 at 220°
Physical Description: Green plates
Other Data: Monoclinic. Three non-equiv. Cu ions are [4+2], [4+1], and [4] coordinated with Cu-O 192-310 pm. These polyhedra are connected at O atom corners, and are linked by PO_4 tetrahedra (P-O 152.4-157.1 pm, av. OPO 109.45°)

>>**Derivative:** 1.5 Hydrate

CAS Registry Number: 82139-40-0
Source/Synthesis: From trihydrate at 150°
Physical Description: Cryst.
Other Data: Orthorhombic

>>**Derivative:** Dihydrate

CAS Registry Number: 60136-69-8
Source/Synthesis: From Cu hydroxide carbonate + H_3PO_4 at 75°
Other Data: Dehydrates in 4 stages between 60° and 600°, with form. of condensed phosphates at >220°
Fluka: 61213

>>**Derivative:** Trihydrate

CAS Registry Number: 10031-48-8
Source/Synthesis: Synth. from Cu_2O + H_3PO_4, or $CuCO_3$ + H_3PO_4 aq.,with cryst. at r.t.; $CuCl_2$ + Na_2HPO_4 in aq. pH 5
Physical Description: Blue cryst.
Other Data: Loses H_2O at 150°

References:

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