



>>Entry Name: Aluminium phosphate (Al(H₂PO₄)₃)

Synonym(s): Aluminium phosphate (1:3), 9Cl, 8Cl. Aluminium tris(dihydrogen phosphate)

CAS Registry Number: 13530-50-2

Al(H₂PO₄)₃

Molecular Formula: AlH₆O₁₂P₃

Molecular Weight: 317.943

Accurate Mass: 317.888755

Percentage Composition: Al 8.49%; H 1.90%; O 60.39%; P 29.23%

Source/Synthesis: Synth. from Al(OH)₃ + H₃PO₄; Al + H₃PO₄; Al₂O₃ + H₃PO₄ at <300°

Use/Importance: Employed in binders eg. for glazes; metal coatings; dental cements

Physical Description: V. hygroscopic colourless hexagonal prisms

Melting Point: Mp 243°

Other Data: When heated forms condensed Al phosphates via an amorphous form produced at 230-290°. Many similar compds. Al(H₂PO₄)_x(HPO₄)_y(H₂O)_z descr.

Fluka: 6234

>>Derivative: Dihydrate

CAS Registry Number: 124606-61-7

Source/Synthesis: Synth. from Al₂O₃-P₂O₅-H₂O system

>>Variant: (1)-form

Molecular Formula: AlH₆O₁₂P₃

Molecular Weight: 317.943

Accurate Mass: 317.888755

Percentage Composition: Al 8.49%; H 1.90%; O 60.39%; P 29.23%

General Statement: Rhombohedral cell. Isolated AlO₆ octahedra are stacked with corner-sharing PO₄ tetrahedra, and the columns are linked by H bonds

Physical Description: V. hygroscopic prisms

Melting Point: Mp 243°

Other Data: Undergoes phase transition at 60° with proton reorientation

>>Variant: (2)-form

Molecular Formula: AlH₆O₁₂P₃

Molecular Weight: 317.943

Accurate Mass: 317.888755

Percentage Composition: Al 8.49%; H 1.90%; O 60.39%; P 29.23%

General Statement: Trigonal unit cell

Physical Description: Hygroscopic colourless cryst.

References:

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