



>>Entry Name: Yttrium phosphate (YPO₄)

Synonym(s): Yttrium(3+) phosphat (1:1), 9Cl, 8Cl. Yttrium(3+) orthophosphate

CAS Registry Number: 13990-54-0

Related CAS Registry Numbers(s): 34054-55-2

YPO₄

Molecular Formula: O₄PY

Molecular Weight: 183.877

Accurate Mass: 183.859271

Percentage Composition: O 34.80%; P 16.84%; Y 48.35%

Source/Synthesis: Synth. from YCl₃ + NaPO₃ at 200-1000°; Y(NO₃)₃ + NH₄H₂PO₄

Use/Importance: Ce activated YPO₄ is a fast-decay uv phosphor. Used in catalysis. Possible host for nuclear waste

Physical Description: Colourless solid

Melting Point: Mp 2150° (1995°; 1980°)

Other Data: Part. sol. H₃PO₄ yielding acid salts, incongr. sol. in H₂O. Ferromagnetic, *T_c* 360°

>>Derivative: Dihydrate

CAS Registry Number: 31512-68-2

Source/Synthesis: Synth. from YCl₃ + NH₄H₂PO₄ in H₂O; YCl₃ + H₃PO₄ aq. at pH 0.5-5 and 20-50°

Physical Description: Colourless cryst.

Other Data: Monoclinic. Weinschenkite struct. type. At higher temp., even in soln., becomes Monazite type. Loses H₂O at =273°

>>Derivative: Trihydrate

CAS Registry Number: 17069-92-0

Source/Synthesis: Synth. from Y(NO₃)₃ + H₃PO₄ aq.

Other Data: Tetragonal

>>Variant: Mineral-form

Synonym(s): Xenotime

CAS Registry Number: 13817-22-6

Molecular Formula: O₄PY

Molecular Weight: 183.877

Accurate Mass: 183.859271

Percentage Composition: O 34.80%; P 16.84%; Y 48.35%

Source/Synthesis: Commonly associated with Monazite, Zircon, or other minerals. Found in Europe (Germany, Austria, Italy) and N. America (California, Colorado, Mexican Gulf) as well as Brazil

Physical Description: Short to long, colourless to pale yellowish-green, yellow, or yellowish-brown, prisms

Other Data: V. stable to hot acids. Contains small amounts of other rare-earth elements eg. Er, La, and also Sc, Ce

References:

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