



>>Entry Name: Zinc phosphides

Molecular Formula: [PZn]

>>Variant: Zinc phosphide (Zn₃P₂), ISO, JMAF

Synonym(s): Agzinphos. Commando. Ratol. Zinc-Tox

CAS Registry Number: 1314-84-7

Molecular Formula: P₂Zn₃

Molecular Weight: 258.117

Accurate Mass: 253.734959

Percentage Composition: P 24.00%; Zn 76.00%

corners of a distorted cube

Source/Synthesis: Usually prepd. from elements

Use/Importance: Lubrication additive; used in photoelectric solar cells

Biological Use/Importance: Rodenticide and general pesticide

Physical Description: Dark grey tetragonal cryst. with faint phosphorus odour; stable when dry

Melting Point: Mp 420°

Boiling Point: Bp 1100°

Solubility: Sol. C₆H₆, CS₂; insol. H₂O, EtOH

Hazard & Toxicity: Reacts violently with H₂SO₄, HNO₃ and other oxidising agents. LD₅₀ (rat, orl) 45.7 mg/kg

>>Variant: Zinc phosphide (Zn₇P₁₀)

CAS Registry Number: 86498-50-2

Molecular Formula: P₁₀Zn₇

Molecular Weight: 767.467

Accurate Mass: 757.241635

Percentage Composition: P 40.36%; Zn 59.64%

Source/Synthesis: Synth. from elements at 5 x 10⁴ atm.

Physical Description: Orthorhombic cryst., stable at < 400°, dec. at 400-500° to Zn₃P₂ and ZnP₂

>>Variant: Zinc phosphide (ZnP₂)

CAS Registry Number: 12037-79-5

Molecular Formula: P₂Zn

Molecular Weight: 127.337

Accurate Mass: 125.876669

Percentage Composition: P 48.65%; Zn 51.35%

both monoclinic and tetragonal forms)

>>Derivative: α-form

Synonym(s): Low temp. form

Physical Description: Red tetragonal cryst.

Other Data: Stable between -186 and 107°; transforms to β-form at 107°

>>Derivative: β-form

Synonym(s): High temp.-form

Use/Importance: *p*-type conductor

Physical Description: Monoclinic black cryst.; isostructural with As₂Zn

>>Variant: Zinc phosphide (ZnP₄)

CAS Registry Number: 104453-60-3

Molecular Formula: P₄Zn

Molecular Weight: 189.285

Accurate Mass: 187.824193

Percentage Composition: P 65.45%; Zn 34.55%

Source/Synthesis: Obt. from Zn and P at 1000° and 4 x 10⁴ atm.

References: