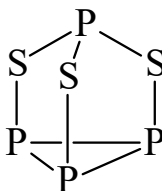




>>Entry Name: Phosphorus sulfide (P<sub>4</sub>S<sub>3</sub>), 9Cl, 8Cl

Synonym(s): Tetraphosphorus trisulfide. 3,5,7-Trithia-1,2,4,6-tetraphosphatricyclo[2.2.1.0<sup>2,6</sup>]heptane, 9Cl, 8Cl



CAS Registry Number: 15578-15-1

Extra CAS Registry Numbers(s): 1314-85-8

Molecular Formula: P<sub>4</sub>S<sub>3</sub>

Molecular Weight: 220.093

Accurate Mass: 219.811258

Percentage Composition: P 56.29%; S 43.71%

>>Variant:  $\alpha$ -form

Molecular Formula: P<sub>4</sub>S<sub>3</sub>

Molecular Weight: 220.093

Accurate Mass: 219.811258

Percentage Composition: P 56.29%; S 43.71%

Source/Synthesis: Synth. from red P + S or by thermolysis of Phosphorus sulfide (P<sub>4</sub>S<sub>7</sub>) [HTK63-S](#)

Physical Description: Orthorhombic cryst.; transforms into plastic form at 38° (39-41°). Yellowish green cryst. (CS<sub>2</sub> or C<sub>6</sub>H<sub>6</sub>). Stable in air, and at 600° in absence of O<sub>2</sub> or moisture. Dec. by hot H<sub>2</sub>O

Melting Point: Mp 173-174.5°

Boiling Point: Bp 407-0° , Bp<sub>10</sub> 225-240°

Solubility: Sol. C<sub>6</sub>H<sub>6</sub>; v. sol. CS<sub>2</sub>

Other Data:  $\Delta H_{298} -151.6$  (-133) kJ mol<sup>-1</sup>

Hazard & Toxicity: May be flammable in air at 100°

>>Variant:  $\beta$ -form

Synonym(s): Plastic phase

Molecular Formula: P<sub>4</sub>S<sub>3</sub>

Molecular Weight: 220.093

Accurate Mass: 219.811258

Percentage Composition: P 56.29%; S 43.71%

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