



>>Entry Name: Arsenic sulfide (As₂S₃), 9Cl, 8Cl

Synonym(s): Arsenic(III) sulfide. Diarsenic trisulfide. Arsenic sesquisulfide

CAS Registry Number: 1303-33-9

Extra CAS Registry Numbers(s): 12612-21-4

As₂S₃

Molecular Formula: As₂S₃

Molecular Weight: 246.041

Accurate Mass: 245.759398

Percentage Composition: As 60.90%; S 39.10%

General Statement: Exists in amorphous and vitreous states as well as cryst. Latter is monoclinic with a layer struct. (cf. As₂O₃) with each As bonded pyramidally to 3 x S at 224 pm

Source/Synthesis: From As + S at high temp. in sealed ampoule; from As₂O₃ + S; in colloidal form from As³⁽⁺⁾ + H₂S at pH 1-2

Use/Importance: Pigment: identified in mediaeval manuscripts (eg. from Armenia). Semiconductor. Used in optical materials, eg. antireflective layers. Photoconductive and used in hologram recording. Commercially available

Physical Description: Red needles or yellow in polycryst. form

Melting Point: Mp 327° (310°)

Boiling Point: Bp 710° (extrap.)

Solubility: Insol. H₂O

Other Data: Sublimes readily below Mp. Vap. consists of As₄S₆ molecules (cf. As₄O₆). Burns when heated in air → As₂O₃ + SO₂. Cl₂ → AsCl₃ + S₂Cl₂. Dissolves readily in OH⁽⁻⁾ aq. Boiling Na₂CO₃ soln. → Arsenic sulfide (As₄S₄) [HTH73-G](#)

Hazard & Toxicity: Poison. Carcinogen

Aldrich: 20270-3

>>Variant: Mineral-form

Synonym(s): Orpiment. Yellow arsenic sulfide. Arsenic yellow. King's yellow. C.I. 77086. Auripigmentum

CAS Registry Number: 12255-89-9

Molecular Formula: As₂S₃

Molecular Weight: 246.041

Accurate Mass: 245.759398

Percentage Composition: As 60.90%; S 39.10%

Source/Synthesis: Occurs in lignite (Czechoslovakia), gold ores (Nevada, U.S.A.; Armenia), hot springs (Japan, and Kamchatka, U.S.S.R.) as well as in Switzerland, Yugoslavia

Physical Description: Yellow solid

References:

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