



>>Entry Name: Arsenic sulfide (As₂S₅), 9Cl, 8Cl

Synonym(s): Diarsenic pentasulfide. Arsenic pentasulfide (incorr.). Arsenic(V) sulfide

CAS Registry Number: 1303-34-0

As₂S₅

Molecular Formula: As₂S₅

Molecular Weight: 310.173

Accurate Mass: 309.703538

Percentage Composition: As 48.31%; S 51.69%

General Statement: Exists in crystalline and vitreous forms

Source/Synthesis: Synth. by reaction of orthoarsenate solns. + H₂S; or Na₃AsS₄ aq. + H⁽⁺⁾

Use/Importance: Employed in photoimagery. Acoustooptic modulator material

Physical Description: Yellow solid. Dec. in air at *ca.* 95° → S + Arsenic sulfide (As₂S₃) [HTH57-E](#)

Other Data: Boiling H₂O → As₂O₃ + S + As₂S₃. Dissolves in solns. of metallic (eg. Gp. I) sulfides giving thioarsenates

Hazard & Toxicity: Flammable as dust; explosive with powerful oxidants

References:

Vaipolin, A.A. *et al.*, *Fiz. Tverd. Tela (Leningrad)*, 1963, **5**, 683; *Sov. Phys. Solid State (Engl. Transl.)*, 1963, **5**, 497, (*struct*)

Timofeeva, N.V. *et al.*, *Dokl. Akad. Nauk SSSR, Ser. Khim.*, 1970, **190**, 902; *Dokl. Phys. Chem. (Engl. Transl.)*, 1970, **190**, 115, (*cryst struct*)

Thilo, E. *et al.*, *Z. Anorg. Allg. Chem.*, 1970, **373**, 111, (*synth*)

Stec, W.J. *et al.*, *Inorg. Chem.*, 1972, **11**, 219, (*pe*)

Poltavtsev, Yu.G., *Zh. Fiz. Khim.*, 1975, **49**, 1425; *Russ. J. Phys. Chem. (Engl. Transl.)*, 1975, **49**, 840, (*struct*)

Brauer, G., *Handbuch Prap. Anorg. Chem.*, 3rd edn., Ferdinand Enke Verlag, 1975, **1**, 582, (*synth*)

Diemann, E., *Rev. Chim. Miner.*, 1979, **16**, 237, (*synth, ir, Raman, uv, pe*)

Sax, N.I. *et al.*, *Dangerous Properties of Industrial Materials*, 7th edn., Van Nostrand Reinhold, 1989, 304, (*haz, tox*)