



>>Entry Name: Yttrium sulfides

Related CAS Registry Numbers(s): 12210-79-6

Molecular Formula: [SY]

>>Variant: Yttrium sulfide (YS)

Synonym(s): Yttrium monosulfide

CAS Registry Number: 12210-79-6

Molecular Formula: SY

Molecular Weight: 120.972

Accurate Mass: 120.877919

Percentage Composition: S 26.51%; Y 73.49%

>>Variant: Yttrium sulfide (Y₂S₃)

Synonym(s): Dyttrium trisulfide

CAS Registry Number: 12039-19-9

Molecular Formula: S₃Y₂

Molecular Weight: 274.01

Accurate Mass: 273.727908

Percentage Composition: S 35.11%; Y 64.89%

Source/Synthesis: δ-form obt. at 1000°; orthorhombic form obt. at 850°, 20000 atm.

Physical Description: Yellow or green solid. Orthorhombic form is metastable at r.t.

Melting Point: Mp 1600°

>>Derivative: D-type

Source/Synthesis: Synth. from Y and S (YClH_{0.67} or Na_{0.25}YClH_{0.75} are alternatives) at 850° in Ta ampoules in presence of NaCl flux

Physical Description: Straw-yellow lath-shaped cryst.

Solubility: Insol. H₂O

Other Data: Contains six different yttrium sites, three with distorted octahedral YS₆ coordination, three with capped trigonal prismatically coordinated YS₇ polyhedra

References:

Picon, M. *et al.*, *Bull. Soc. Chim. Fr.*, 1960, 221, (*synth*)

Ring, S.A. *et al.*, *Inorg. Chem.*, 1964, **3**, 182, (*synth*)

Sleight, A.W. *et al.*, *Inorg. Chem.*, 1968, **7**, 2283, (*synth, struct*)

Eatough, N.L. *et al.*, *Inorg. Chem.*, 1969, **8**, 2069, (*synth, struct*)

Range, K.J. *et al.*, *Z. Naturforsch., B*, 1975, 889, (*synth, struct*)

Gmelin Handbook Inorg. Chem., Syst. No. 39, 1983, C7, (rev)

Schleid, T., *Eur. J. Solid State Inorg. Chem.*, 1992, **29**, 1015, (*synth, cryst struct, D-type*)