



>>Entry Name: Lanthanum sulfides

Molecular Formula: [LaS]

>>Variant: Lanthanum sulfide (LaS)

CAS Registry Number: 12031-30-0

Molecular Formula: LaS

Molecular Weight: 170.972

Accurate Mass: 170.878417

Percentage Composition: La 81.24%; S 18.76%

Physical Description: Metallic gold solid

Other Data: Superconductor; T_c 0.84K. Weakly paramagnetic; oxidises > 500°

>>Variant: Lanthanum sulfide (La₂S₃)

Synonym(s): Dilanthanum trisulfide

CAS Registry Number: 12031-49-1

Molecular Formula: La₂S₃

Molecular Weight: 374.009

Accurate Mass: 373.728904

Percentage Composition: La 74.28%; S 25.72%

Physical Description: Red (α -form), green (β -form) or yellow (γ -form) solid

Other Data: Stoichiometry of γ -form is LaS_{1.482}; of β -form LaS_{1.43} (prob. oxysulfide)

>>Variant: Lanthanum sulfide (La₃S₄)

CAS Registry Number: 12162-74-2

Molecular Formula: La₃S₄

Molecular Weight: 544.981

Accurate Mass: 544.607321

Percentage Composition: La 76.46%; S 23.54%

Use/Importance: n -Type semiconductor. Superconductor < 8.05K

References:

Picon, M. *et al.*, *Bull. Soc. Chim. Fr.*, 1960, 221, (*struct, synth, La₃S₄*)

Guittard, M., *C. R. Hebd. Seances Acad. Sci.*, 1965, **261**, 2109, (*LaS*)

Flahaut, J. *et al.*, *CA*, 1967, **67**, 70138, (*LaS*)

Sato, M. *et al.*, *J. Less-Common Met.*, 1967, **12**, 419, (*synth, LaS*)

Besancon, P. *et al.*, *C. R. Hebd. Seances Acad. Sci. Ser. C*, 1968, **266**, 111; 1969, **268**, 48, (*synth, struct, La₂S₃*)

Eatough, N.L. *et al.*, *Inorg. Chem.*, 1969, **8**, 2069, (*synth, struct, La₂S₃*)

Adamyany, V.E. *et al.*, *Sov. Phys. Solid State (Engl. Transl.)*, 1970, **12**, 2239, (*magnetism, LaS*)

Zhuze, V.P. *et al.*, *Fiz. Tverd. Tela (Leningrad)*, 1971, **13**, 811; *Sov. Phys. Solid State (Engl. Transl.)*, 1971, **13**, 669, (*conductivity, La₃S₄*)

Dermier, P.D. *et al.*, *J. Solid State Chem.*, 1975, **15**, 203, (*synth, La₃S₄*)

Shelton, R.N. *et al.*, *Mater. Res. Bull.*, 1975, **10**, 1111, (*synth*)

Bucher, E. *et al.*, *Phys. Rev. B*, 1975, **11**, 500, (*conductivity, LaS*)

Kamarzin, A.A. *et al.*, *Mater. Res. Bull.*, 1976, **11**, 695, (*synth, La₂S₃*)

Westerholt, K. *et al.*, *Solid State Commun.*, 1979, **31**, 901, (*La₃S₄*)

Skomyako, G.P. *et al.*, *J. Appl. Spectrosc. (Engl. Transl.)*, 1981, **34**, 247, (*Raman, La₂S₃*)

Gmelin Handbook Inorg. Chem., Syst. No. 39, 1983, **C7**, 49; 69; 143; 147; 15, (*rev*)