



>>Entry Name: Silver(I) sulfide (Ag₂S)

Synonym(s): Argentous sulfide

CAS Registry Number: 21548-73-2

Extra CAS Registry Numbers(s): 12751-47-2

Ag₂S

Molecular Formula: Ag₂S

Molecular Weight: 247.802

Accurate Mass: 245.782254

Percentage Composition: Ag 87.06%; S 12.94%

and 593°

Use/Importance: Used in ceramics. Commercially available

Physical Description: Greyish-black, heavy powder

Solubility: Insol. H₂O; sol. HNO₃, solns. of alkali cyanides

Other Data: ΔH_f° -31.9 kJ mol⁻¹. Dec. with loss of sulfur >200°

Aldrich: 24147-4

Fluka: 85290

>>Variant: Mineral-form

Synonym(s): Argentite. Acanthite

CAS Registry Number: 1332-04-3

Extra CAS Registry Numbers(s): 12068-32-5

Molecular Formula: Ag₂S

Molecular Weight: 247.802

Accurate Mass: 245.782254

Percentage Composition: Ag 87.06%; S 12.94%

Source/Synthesis: Occurs. e.g. in Western USA; major ore in Mexico; also found in some European countries. Commonly assoc. with Ag and galena

Physical Description: Lead-grey to blackish lead-grey opaque cryst.

Other Data: Hardness: 2.3 Mohs

References:

Hönigschmid, O. *et al.*, *Z. Anorg. Allg. Chem.*, 1931, **195**, 207, (*synth*)

Kroge-Moe, J., *Sel. Top. High Temp. Chem.*, 1966, 79; *CA*, **65**, 114556, (*phase props*)

Okazaki, H. *et al.*, *J. Phys. Soc. Jpn.*, 1967, **23**, 355, (*conductivity*)

Brauer, G., *Handbuch Prap. Anorg. Chem.*, 3rd edn., Ferdinand Enke Verlag, 1975, **2**, 999, (*synth*)

Cava, R.J. *et al.*, *J. Solid State Chem.*, 1980, **31**, 69, (*cryst struct*)

Merck Index, 11th edn., 1989, No. 8481