>>**Entry Name: Potassium sulfide (K_2S),** 8Cl
Synonym(s): Dipotassium sulfide. Potassium monosulfide

CAS Registry Number: 1312-73-8

Molecular Formula: K_2S
Molecular Weight: 110.263
Accurate Mass: 109.899484
Percentage Composition: K 70.92%; S 29.08%

Source/Synthesis: Synth. by reduction of K_2SO_4 with carbon or by direct reaction of the elements or by thermal dehydration of the pentahydrate under vacuum at 300°
Use/Importance: Used to colour copper coatings. Component of hair treatment preparations
Physical Description: Moisture-sensitive yellow-brown cubic cryst.; deliquescent. Reacts with H_2O to form KOH and KSH
Melting Point: Mp 948°
Solubility: V. sol. H_2O; sol. EtOH; insol. Et_2O
Other Data: ΔH_f° –377kJ mol^{-1}; ΔG_f° –363kJ mol^{-1}; S° 115 J K^{-1} mol^{-1}

>>**Derivative:** Pentahydrate

CAS Registry Number: 12136-48-0
Source/Synthesis: Cryst. from aq. solns. of K_2S
Physical Description: Thermal dehydration *in vacuo* or in a stream of H_2 at 300° leads ultimately to anhydrous K_2S. Dehydration over H_2SO_4 *in vacuo* gives $K_2S.2H_2O$
Melting Point: Mp 60°
Solubility: V. sol. H_2O
Other Data: A dihydrate and dodecahydrate have also been reported

References:

West, C.D.*, Z. Kristallogr.*, 1934, **88**, 97, *(cryst struct)*
Angelov, I.I. *et al.*, *CA*, 1961, **55**, 6227c; 1962, **57**, 13395h, *(synth, props, pentahydrate)*
Lichtman, D. *et al.*, *Appl. Surf. Sci.*, 1981, **7**, 325, *(pe)*
Chase, M.W. *et al.*, *J. Phys. Chem. Ref. Data*, 1985, **14**, 1423, *(thermochem data)*
Lewis, R.J.*, Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, PLT250