



>>Entry Name: Potassium tetrafluoroborate (KBF₄)

Synonym(s): Potassium fluoborate. Potassium borofluoride. Tetrafluoroborate, potassium salt

CAS Registry Number: 14075-53-7

Related CAS Registry Numbers(s): 12197-25-0

KBF₄

Molecular Formula: BF₄K

Molecular Weight: 125.903

Accurate Mass: 125.966624

Percentage Composition: B 8.59%; F 60.36%; K 31.05%

Source/Synthesis: Synth. by reaction of excess B₂O₃ with KCl and BrF₃

Use/Importance: Commercially available. Used to harden steel (boronisation) and as a component of brazing fluxes

Physical Description: Colourless orthorhombic cryst. Undergoes orthorhombic to cubic transition at 283°

Melting Point: Mp 570°

Solubility: Sl. sol. H₂O (0.4 g per 100 cm³ at 20°; 6.3 g per 100 cm³ at 100°); spar. sol. Et₂O, EtOH

Other Data: ΔH_f° -1887 kJ mol⁻¹; ΔG_f° -1785 kJ mol⁻¹; S° 134 J K⁻¹ mol⁻¹

Hazard & Toxicity: Corrosive

Aldrich: 27895-5

Fluka: 60070

>>Variant: Mineral-form

Synonym(s): Avogadrite

CAS Registry Number: 1303-68-0

Molecular Formula: BF₄K

Molecular Weight: 125.903

Accurate Mass: 125.966624

Percentage Composition: B 8.59%; F 60.36%; K 31.05%

Source/Synthesis: Sublimation product at Mt. Vesuvius

Physical Description: Minute cryst.

References:

Finbak, C. *et al.*, *Z. Phys. Chem. (Leipzig)*, 1936, **32**, 433, (*polymorphs*)

Woolf, A.A. *et al.*, *J.C.S.*, 1950, 1050, (*synth*)

Clark, M.J.R. *et al.*, *Can. J. Chem.*, 1969, **47**, 2579, (*struct*)

Bates, J.B. *et al.*, *Spectrochim. Acta A*, 1975, **31**, 1317, (*ir, Raman*)

Chase, M.W. *et al.*, *J. Phys. Chem. Ref. Data*, 1985, **14**, 215, (*thermochem data, polymorphs*)

Sigma-Aldrich Library of Chemical Safety Data, 1988, **2**, 2911A, (*haz*)

Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, PKY000