



>>Entry Name: Potassium hydrogen fluoride (KHF₂)

Synonym(s): Potassium bifluoride. Potassium fluoride (KHF₂), 8CI

CAS Registry Number: 7789-29-9

KHF₂

Molecular Formula: F₂HK

Molecular Weight: 78.103

Accurate Mass: 77.968338

Percentage Composition: F 48.65%; H 1.29%; K 50.06%

Source/Synthesis: Synth. by cryst. from aq. KF/HOAc mixt. or by prolonged stirring of KF suspension in dil. aq. HCl at 50°

Use/Importance: Commercially available. Fluorinating agent. Source of fluorine by electrolysis of the molten salt. Constit. of etching compositions

Physical Description: Deliquescent colourless cubic cryst. Undergoes tetragonal to cubic transition at 197°

Melting Point: Mp 238.8°

Solubility: V. sol. H₂O (41 g per 100 cm³ at 21°); insol. EtOH

Other Data: ΔH_f° -931 kJ mol⁻¹; ΔG_f° -863 kJ mol⁻¹; S° 104.3 J K⁻¹ mol⁻¹. Example of an exceedingly short (229.2 pm) hydrogen bond

Hazard & Toxicity: Highly toxic, corrosive

Aldrich: 46367-1

Fluka: 60344

Sigma: P7958

References:

Bozorth, R.M., *J.A.C.S.*, 1923, **45**, 2128, (*cryst struct*)

Kruh, K.F. *et al.*, *J.A.C.S.*, 1956, **78**, 4256, (*polymorphs*)

Rush, J.J. *et al.*, *J. Chem. Phys.*, 1972, **56**, 2793, (*ir, Raman*)

Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **10**, 789, (*rev, uses*)

Emsley, J., *J.C.S. Dalton*, 1981, 1219, (*synth, struct*)

Chase, M.W. *et al.*, *J. Phys. Chem. Ref. Data*, 1985, **14**, 1063, (*thermochem data*)

Sigma-Aldrich Library of Chemical Safety Data, 1988, **2**, 2903D, (*haz*)

Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, PKU250; PKU500