



>>Entry Name: Beryllium fluoride (BeF₂)

CAS Registry Number: 7787-49-7

BeF₂

Molecular Formula: BeF₂

Molecular Weight: 47.009

Accurate Mass: 47.008988

Percentage Composition: Be 19.17%; F 80.83%

General Statement: Hexagonal

Source/Synthesis: Prepd. by thermal dec. of (NH₄)₂BeF₄ obt. by reaction of BeO with NH₄F or NH₄.HF₂

Use/Importance: Component of FLiBe - a nuclear fusion reactor blanket tritium breeding material containing LiF and BeF₂. Component of halide glasses. Metallothermic reduction of BeF₂ is used for beryllium manuf.

Physical Description: Colourless hexagonal cryst. Undergoes transition from low temp. quartz to high temp. quartz struct. types at 227°. Readily forms glasses

Melting Point: Mp 552°

Boiling Point: Subl. 800°

Solubility: V. sol. H₂O; spar. sol. EtOH

Other Data: ΔH_f° -1025 kJ mol⁻¹; ΔG_f° -979 kJ mol⁻¹; S° 53.4 J K⁻¹ mol⁻¹

Hazard & Toxicity: Highly toxic, suspected carcinogen

References:

Novoselova, A.V. *et al.*, *CA*, 1957, **51**, 5615g, (*cryst struct, polymorphs*)

Brunton, G.D. *et al.*, *U.S. At. Energy Comm., Rept. ORNL-3761*, 1965, (*cryst struct*)

Kirk-Othmer Encycl. Chem. Technol., 2nd edn., Wiley, 1966, **9**, 552, (*uses*)

Bell, R.J. *et al.*, *J. Phys. C: Solid State Phys.*, 1968, **1**, 299, (*ir, Raman*)

Daenner, W., *Reaktortag., [Fachvortr.]*, 1972, 747; *CA*, 1973, **78**, 10619, (*use*)

Johnson, A.B., *CA*, 1975, **83**, 67223, (*use*)

Baldwin, C.M. *et al.*, *J. Non-Cryst. Solids*, 1981, **43**, 309, (*glass formn*)

Chase, M.W. *et al.*, *J. Phys. Chem. Ref. Data*, Suppl. 1, 1985, **14**, 372, (*polymorphs, thermochem data*)

Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, BFR500