



>>Entry Name: Lithium bromide (LiBr), 8CI

CAS Registry Number: 7550-35-8

Related CAS Registry Numbers(s): 85017-82-9

LiBr

Molecular Formula: BrLi

Molecular Weight: 86.845

Accurate Mass: 85.954339

Percentage Composition: Br 92.01%; Li 7.99%

Source/Synthesis: Prepd. by slow neutralisation of Li_2CO_3 with aq. HBr; crystallises as the hydrate

Use/Importance: Commercially available. Powerful desiccant used in air conditioning and industrial drying systems. Catalyst for olefinic bond formation in the solid state

Physical Description: Deliquescent white cubic cryst.

Melting Point: Mp 550°

Boiling Point: Bp 1265°

Solubility: V. sol. H_2O (145 g per 100 cm^3 at 4°; 254 g per 100 cm^3 at 90°), EtOH (73 g per 100 cm^3 at 40°); mod. sol. MeOH, EtOH, Me_2CO ; spar. sol. Py

Other Data: $\Delta H_f^\circ -350.9 \text{ kJ mol}^{-1}$; $\Delta G_f^\circ -341.6 \text{ kJ mol}^{-1}$; $S^\circ 74.1 \text{ J K}^{-1} \text{ mol}^{-1}$

Aldrich: 22973-3

Fluka: 62464

Sigma: L4883

>>Derivative: Monohydrate

CAS Registry Number: 23303-71-1

Molecular Formula: BrH_2LiO

Molecular Weight: 104.86

Accurate Mass: 103.964904

Percentage Composition: Br 76.20%; H 1.92%; Li 6.62%; O 15.26%

Source/Synthesis: Commercially available

Physical Description: White orthorhombic cryst.; transforms to cubic polymorph. at 33°; dec. on heating with H_2O loss ($-\text{H}_2\text{O}$ at 165°)

Solubility: V. sol. H_2O (246 g per 100 cm^3 at 20°); sol. EtOH

Other Data: $\Delta H_f^\circ -663 \text{ kJ mol}^{-1}$; $\Delta G_f^\circ -594 \text{ kJ mol}^{-1}$; $S^\circ 110 \text{ J K}^{-1} \text{ mol}^{-1}$

>>Derivative: Dihydrate

CAS Registry Number: 13453-70-8

Molecular Formula: BrH_4LiO_2

Molecular Weight: 122.875

Accurate Mass: 121.975469

Percentage Composition: Br 65.03%; H 3.28%; Li 5.65%; O 26.04%

Physical Description: Colourless cryst.; dec. on heating with H_2O loss ($-\text{H}_2\text{O}$ at 160°)

Solubility: V. sol. H_2O (246 g per 100 cm^3 at 20°); sol. EtOH

Other Data: $\Delta H_f^\circ -963 \text{ kJ mol}^{-1}$; $\Delta G_f^\circ -841 \text{ kJ mol}^{-1}$; $S^\circ 162 \text{ J K}^{-1} \text{ mol}^{-1}$

>>Derivative: Tetrahydrofuran complex (1:1)

Molecular Formula: $\text{C}_4\text{H}_8\text{BrLiO}$

Molecular Weight: 158.952

Accurate Mass: 158.011854

Percentage Composition: C 30.23%; H 5.07%; Br 50.27%; Li 4.37%; O 10.07%

Source/Synthesis: Obt. serendipitously by recryst. (from toluene) of the red oil obt. from the soln. produced by addn. of GeBr_4 to 1-naphthylamidolithium diss. in Et_2O and THF

Physical Description: Needles (toluene); stable only at low temp (-35°)

Other Data: In the polymeric struct. each Li atom is tetrahedrally coord. by three bridging Br atoms and the O atom of a pendant THF molecule. Rapidly desolvates at 25° to give LiBr

References: