



>>Entry Name: Lithium iodide (LiI), 8Cl

CAS Registry Number: 10377-51-2

Related CAS Registry Numbers(s): 85017-80-7

LiI

Molecular Formula: ILi

Molecular Weight: 133.846

Accurate Mass: 133.920476

Percentage Composition: I 94.81%; Li 5.19%

Source/Synthesis: Prepd. by slow neutralisation of Li_2CO_3 with HI; cryst. as trihydrate

Use/Importance: Commercially available. Component of battery electrolytes. Constit. of catalysts for carbonylation reactions

Physical Description: White cubic cryst.

Melting Point: Mp 469°

Boiling Point: Bp 1180°

Solubility: V. sol. H_2O (165 g per 100 cm^3 at 20°; 433 g per 100 cm^3 at 80°), EtOH (251 g per 100 cm^3 at 20°), MeOH (343 g per 100 cm^3 at 20°), Me_2CO (43 g per 100 cm^3 at 18°)

Other Data: $\Delta H_f^\circ -270.1 \text{ kJ mol}^{-1}$; $\Delta G_f^\circ -269.7 \text{ kJ mol}^{-1}$; $S^\circ 85.8 \text{ J K}^{-1} \text{ mol}^{-1}$

Aldrich: 45095-2

Fluka: 62550

Sigma: L4508

>>Derivative: Monohydrate

CAS Registry Number: 17023-24-4

Molecular Formula: H_2ILiO

Molecular Weight: 151.861

Accurate Mass: 151.931041

Percentage Composition: H 1.33%; I 83.57%; Li 4.57%; O 10.54%

Physical Description: Colourless cubic cryst.

Other Data: $\Delta H_f^\circ -590 \text{ kJ mol}^{-1}$; $\Delta G_f^\circ -531 \text{ kJ mol}^{-1}$; $S^\circ 123 \text{ J K}^{-1} \text{ mol}^{-1}$

>>Derivative: Dihydrate

CAS Registry Number: 17023-25-5

Molecular Formula: H_4ILiO_2

Molecular Weight: 169.876

Accurate Mass: 169.941606

Percentage Composition: H 2.37%; I 74.70%; Li 4.09%; O 18.84%

Physical Description: Pale yellow hexagonal cryst.

Other Data: $\Delta H_f^\circ -890 \text{ kJ mol}^{-1}$; $\Delta G_f^\circ -780 \text{ kJ mol}^{-1}$; $S^\circ 184 \text{ J K}^{-1} \text{ mol}^{-1}$

>>Derivative: Trihydrate

CAS Registry Number: 7790-22-9

Molecular Formula: H_6ILiO_3

Molecular Weight: 187.891

Accurate Mass: 187.952171

Percentage Composition: H 3.22%; I 67.54%; Li 3.69%; O 25.55%

Use/Importance: Commercially available

Physical Description: Pale yellow hexagonal cryst.; hygroscopic. Dec. on heating by H_2O loss

Solubility: V. sol. H_2O (151 g per 100 cm^3 at 0°; 201 g per 100 cm^3 at 60°); sol. EtOH, Me_2CO

Other Data: $\Delta H_f^\circ -1192 \text{ kJ mol}^{-1}$

References:

Ott, H., *Z. Phys.*, 1923, **24**, 209, (*cryst struct*)

West, C.D., *Z. Kristallogr.*, 1934, **88**, 198, (*cryst struct, trihydrate*)

Gmelin Handbook Inorg. Chem., Syst. No. 20, 1960, 444, (*rev, bibl*)

Weiss, E., *Z. Anorg. Allg. Chem.*, 1965, **341**, 203, (*cryst struct, monohydrate*)

Chase, M.W. *et al.*, *J. Phys. Chem. Ref. Data*, 1985, **14**, 1339, (*thermochem data*)

Wegman, R.W. *et al.*, *Chem. Comm.*, 1986, 332, (*uses*)