



>>Entry Name: Lithium tetraborate

Synonym(s): Boric acid, dilithium salt, 8Cl

CAS Registry Number: 12007-60-2

Related CAS Registry Numbers(s): 12007-61-3

$\text{Li}_2\text{B}_4\text{O}_7$

Molecular Formula:  $\text{B}_4\text{Li}_2\text{O}_7$

Molecular Weight: 169.122

Accurate Mass: 170.033631

Percentage Composition: B 25.57%; Li 8.21%; O 66.22%

Source/Synthesis: Prepared by thermal treatment of a 2:1  $\text{B}_2\text{O}_3$ : $\text{Li}_2\text{O}$  molar ratio

Use/Importance: Commercially available. Spectroscopic fluxing agent; component of  $\gamma$ -ray thermoluminescent dosimeters

Physical Description: White tetragonal cryst.

Melting Point: Mp 917°

Solubility: Mod. sol.  $\text{H}_2\text{O}$  (2.9 g per 100  $\text{cm}^3$  at 20°; 5.5 g per 100  $\text{cm}^3$  at 100°)

Other Data:  $\Delta H_f^\circ -3362 \text{ kJ mol}^{-1}$ ;  $\Delta G_f^\circ -3170 \text{ kJ mol}^{-1}$ ;  $S^\circ 156 \text{ J K}^{-1} \text{ mol}^{-1}$

Hazard & Toxicity: Irritant

Aldrich: 22253-4

Fluka: 62614

Sigma: L7781

>>Derivative: Monohydrate

Synonym(s): Lithium tetraborate monohydrate

CAS Registry Number: 1303-94-2

Molecular Formula:  $\text{B}_4\text{H}_2\text{Li}_2\text{O}_8$

Molecular Weight: 187.137

Accurate Mass: 188.044196

Percentage Composition: B 23.11%; H 1.08%; Li 7.42%; O 68.40%

References:

*Aldrich Library of FT-IR Spectra*, 1st edn., 1985, **2**, 1270D, (ir)

*Gmelin Handbook Inorg. Chem.*, Syst. No 20, 1960, 491, (rev, bibl)

Krogh-Moe, J., *Acta Cryst.*, 1962, **15**, 190, (cryst struct)

Weir, C.E. *et al.*, *J. Res. Natl. Bur. Stand., Sect. A*, 1964, **68**, 465, (ir)

Chase, M.W. *et al.*, *J. Phys. Chem. Ref. Data*, 1985, **14**, 292, (thermochem data)