

Catalog Number: 150134, 152538, 194010

Lithium Chloride

Structure:



Molecular Formula: LiCl

Molecular Weight: 42.39

CAS # : 7447-41-8

Physical Description: White powder

Solubility: Soluble in water (1 g/ 1.3 ml cold water or 0.8 ml hot water), alcohol, acetone, amyl alcohol, pyridine; the aqueous solution is neutral to slightly alkaline.¹

Description: Used as an electrolyte for low temperature dry battery cells and as an oxidation catalyst. It is a solubilizer for polyamides and cellulose when used with amide solvents, and is a chlorinating agent for steroid substrates.

Lithium chloride has also been utilized in:

- Large scale plasmid DNA isolation without ultracentrifugation.⁵
- Protein extraction and protein crystallization.^{2,3,4,7,8}
- Crystallization of other biological structures, including vitamin B12-RNA aptamer and the L-A virus particle.^{10,13}
- Inhibits the expression and secretion of insulin-like growth factor-binding protein-1 in H4-II-E cells.⁹
- Used in the synthesis of beta-substituted alpha-amino acid derivatives.^{6,11}

Availability:

Catalog Number	Description	Size
150134	Lithium chloride	100 g
	anhydrous	500 g

		1 kg 10 kg
194010	Lithium chloride, molecular biology reagent	100 g 500 g
152538	Lithium chloride, ACS Reagent Grade	100 g 500 g

References:

1. *Merck Index*, **12th Ed.**, No. 5553.
2. Begun, J., et al., "Crystallization of PNMT, the adrenaline-synthesizing enzyme, is critically dependent on a high protein concentration." *Acta Crystallogr. D Biol. Crystallogr.*, **v. 58(Pt 2)**, 314-315 (2002).
3. Berge, M., et al., "Identification of a protein that inactivates the competence-stimulating peptide of *Streptococcus pneumoniae*." *J. Bacteriol.*, **v. 184(2)**, 610-613 (2002).
4. Boyington, J.C., et al., "Crystallization and preliminary x-ray analysis of soybean lipoxygenase-1, a non-heme iron-containing dioxygenase." *J. Biol. Chem.*, **v. 265(22)**, 12771-12773 (1990).
5. Chakrabarti, A., et al., "A procedure for large-scale plasmid isolation without using ultracentrifugation." *Biotechnol. Appl. Biochem.*, **v. 16(2)**, 211-215 (1992).
6. Guillena, G. and Najera, C., "1,5-Dimethyl-4-phenylimidazolidin-2-one-derived iminic glycinimides: useful new reagents for practical asymmetric synthesis of alpha-amino acids." *J. Org. Chem.*, **v. 65(22)**, 7310-7322 (2000).
7. Hussain, M., et al., "A lithium chloride-extracted, broad-spectrum-adhesive 42-kilodalton protein of *Staphylococcus epidermidis* is ornithine carbamoyltransferase." *Infect. Immun.*, **v. 67(12)**, 6688-6690 (1999).
8. Kraft, L., et al., "Crystallization and preliminary X-ray crystallographic studies of recombinant thermoresistant gluconate kinase GntK from *Escherichia coli*." *Acta Crystallogr. D Biol. Crystallogr.* **v. 57(Pt 8)**, 1159-1161 (2001).
9. Lewitt, M.S., et al., "Lithium chloride inhibits the expression and secretion of insulin-like growth factor-binding protein-1." *J. Endocrinol.*, **v. 171(3)**, R11-15 (2001).
10. Naitow, H., et al., "Purification, crystallization, and preliminary X-ray analysis of L-A: a dsRNA yeast virus." *J. Struct. Biol.*, **v. 135(1)**, 1-7 (2001).

11. O'Donnell, M. J., et al., "Acyclic stereoselective boron alkylation reactions for the asymmetric synthesis of beta-substituted alpha-amino acid derivatives." *J. Am. Chem. Soc.*, v. **125(9)**, 2370-2371 (2003).
12. Piotrowski, H. and Severin, K., "A self-assembled redox-responsive receptor for the selective extraction of LiCl from water." *Proc. Natl. Acad. Sci. U.S.A.*, v. **99(8)**, 4997-5000 (2002).
13. Sussman, D., et al., "The structural basis for molecular recognition by the vitamin B12 RNA aptamer." *Nat. Struct. Biol.*, v. **7(1)**, 53-57 (2000).