

Li 3 periodic table

Lithium does not occur as the free metal in nature because of its high reactivity. Deposits are known all around the world. It is a minor component of nearly all igneous rocks and is a component of many natural brines.

The ore spodumene, $\text{LiAl}(\text{SiO}_3)_2$, is the most important commercial ore containing lithium. The α form is first converted into the softer β form by heating to around 1100°C . This is mixed carefully with hot sulphuric acid and extracted into water to form lithium sulphate, Li_2SO_4 , solution. The sulphate is washed with sodium carbonate, Na_2CO_3 , to form a precipitate of the relatively insoluble lithium carbonate, Li_2CO_3 .

Lithium chloride has a high melting point ($> 600^\circ\text{C}$) meaning that it would be expensive to melt it in order to carry out the electrolysis. However a mixture of LiCl (55%) and KCl (45%) melts at about 430°C and so much less energy and so expense is required for the electrolysis.

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Web: <https://sumthingtasty.co.za/contact-us/>

Email: energystorage2000@gmail.com

WhatsApp: 8613816583346

