

Cheaper lithium extraction

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Extracting lithium is unsustainable. Lithium is extracted by electrolysis of a molten mixture of lithium chloride and potassium chloride. The source of lithium chloride is underground salt water. The salt water also contains other metal ions such as sodium and aluminium, which must be separated from the lithium chloride. The purification process uses noxious chemicals.

Now, scientists have found that adding a layer of a solid ceramic into the electrolysis cell makes the process more sustainable. Only lithium ions can pass through the ceramic, so the cell can use unpurified lithium chloride. The impurities are left behind in the molten salt. The scientists could also add aluminium chloride to the molten salt to lower the melting point of the electrolyte.



Lithium thionyl chloride batteries

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1. Explain why the electrolyte mixture has to be molten.
2. Explain why lithium forms at the negative electrode in electrolysis.
3. Explain why adding aluminium chloride makes the process cheaper.