Picture of the Ferric Chloride Battery Device

Could ferric chloride be a new cathode material for solid-state batteries?
Researchers at the Georgia Institute of Technology in Atlanta,USA,see massive potential reductions in both cost and use of critical raw materials by using ferric chloride (FeCl3) as a new cathode material for solid-state batteries. In initial tests,they found that FeCl3 works just as well or even better...

Is FeCl3 a low-cost cathode for all-solid-state lithium-ion batteries?
FeCl3 uses affordable iron and chlorine,unlike costly nickel and cobalt,and operates at a higher voltage than lithium iron phosphate in EVs. Researchers present the new,low-cost cathode for all-solid-state lithium-ion batteries. Georgia Tech Researchers have created a low-cost iron chloride cathode for lithium-ion batteries (LIBs).

What is a low-cost iron chloride cathode for lithium-ion batteries?
Georgia Tech Researchershave created a low-cost iron chloride cathode for lithium-ion batteries (LIBs). This innovation,developed by a team at Georgia Tech,promises to lower costs and enhance performance for electric vehicles (EVs) and large-scale energy storage systems.

What is iron chloride (FeCl3)?
The innovative iron chloride (FeCl3) material costs just 1-2 percent of conventional cathode materials while storing the same amount of electricity. Cathode materials are key to determining a battery's capacity, energy, efficiency, and overall performance, which in turn directly impacts its lifespan and affordability.

Can FECL 3 be used as cathode materials in solid-state batteries?
Correspondence to Hailong Chen. Z.L. and H.C. have filed a US provisional patent application (63/363,875) covering the application of FeCl 3 and related compounds as cathode materials in solid-state batteries as described in this paper. The remaining authors declare no competing interests.

Is FeCl3 a good cathode?
The chemistry used in the newly developed cathode - called FeCl3 - uses abundant materials iron (Fe) and chlorine (Cl),avoiding the use of nickel and cobalt. The team's initial tests showed FeCl3 performed as well or better than other more expensive cathodes,with a higher operational voltage as LFP batteries now flooding the market.

Image represents the schematic diagram of all-iron redox flow battery where analyte is a mixture of both ferrous and ferric chloride and catholyte is the ferrous chloride alone. Graphite felt is used as electrode on both sides. Redox reaction occurs at anode (Eq.

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Researchers at the Georgia Institute of Technology have developed a low-cost cathode material for lithium-ion batteries. It is iron chloride (FeCl3), which according to the researchers costs only one to two per cent of typical cathode materials and is just as efficient.

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The authors present a FeCl3 cathode design that enables all-solid-state lithium-ion batteries with a favourable combination of low cost, improved safety and good performance.

Ferrous chloride exhibits a capacity beyond 500 mAh/g, while Cl-rich iron oxide demonstrates a capacity beyond 300 mAh/g. After adding a binder to ferrous chloride, the cycle life also is improved significantly, allowing for continuous ...

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