

Halogen-free electrolytes for metal ion batteries

Creation of a halogen-free electrolyte synthesis to be used in batteries (Li-ion, Na-ion, and Mg-ion, etc.)

Lithium-ion battery dominates the market, used to power smartphones, laptops, electric cars, cordless power tools, and other electronic products. These batteries are popular for their rapid recharge ability, lightweight composition, great electrochemical potential, and low self-discharge. Currently, Lithium-ion batteries, which contain halogens, give rise to multiple problems, such as rapid aging of the battery, costly manufacturing expenses, toxicity, and environmental and social consequences. New advances are needed in batteries to combat these issues.

The technology

The innovation creates an alternative solution for metal ion batteries using a halogen-free electrolyte synthesis. This halogen-free synthesis is beneficial because it is nontoxic and will not corrode electrodes in batteries. The absence of halogens adds advantageous features, for example, the metal ions are not strongly bound to the negative ions, which allows for easy detachment. The ions also have the capability to increase current density without sacrificing its lightweight composition. These unique characteristics sets this innovation apart from current metal ion batteries and can be applied to mobile and static technologies.

Benefits

- » Alternative for a rechargeable battery
- » Nontoxic, affinity for water is low
- » Ions are easily detachable

Applications

- » Smartphones
 - » Automobiles
 - » Aircrafts
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Patent status: Patent issued: U.S. and foreign rights available

License status: This technology is available for licensing to industry for further development and commercialization

Category: Materials/Physical Science

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Investigators: [Puru Jena](#)

External resources: [US20190036170A1](#)

Contact us about this technology

Koffi Egbeto, MS
Licensing Associate
egbetok@vcu.edu
(804) 827-2213