

Enhancement of oxidative stability of lithium metal batteries (LMBs) using ether-based electrolytes

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- Chemical Engineering
- Materials and Manufacturing

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- Composite
- Lithium-Ion Battery
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- Solid State Electrolyte

Lithium metal batteries are a promising approach for increasing the energy density of batteries; however, they can suffer from poor cyclability, dendritic deposition, and cathode electrolyte interface problems. Researchers at Purdue have developed ether-based electrolytes that are cost effective, improve the anodic stability of ethers at high-voltage and enhance the oxidation stability of the battery. This technology overcomes the limitations of existing ether-based electrolytes that hinder their practical applications in high-voltage conditions.

Technology Validation:

• Voltage efficiency (99.90 %, 4.3 V) seen after stable cycling within a practical LMB.

Advantages:

• High voltage stability as well as small interfacial resistance when used in an LMB

• Mitigates high voltage Li metal batteries seen, especially at low temperatures.

Applications:

• High energy density & low self-discharge

People:

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Intellectual Property:

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