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New Sulfone Electrolytes for Rechargeable Lithium Batteries

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Intellectual Property Status:

Patent Pending

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Background

The United States' demand for battery and fuel cell materials is projected to grow 5.9 percent annually through 2009 rising to $3.4 billion in sales. Healthy gains in U.S. battery production, due to the growing popularity of high-drain electronic products such as digital cameras and wireless phones, will result in the increased use of high-value materials needed to boost battery performance. Existing technologies in the market use LiPF6 in carbonate solvents. The major problems associated with existing technologies are the high melting point (35^0 C) and low window of electrochemical stability (~ 4.7 V).

Invention Description

To overcome these problems, researchers at ASU have developed a new chemical compound that can be used as an electrolyte for rechargeable lithium batteries. This newly developed compound has a lower melting point (< 2^0 C) and also provides a higher window of electrochemical stability (~ 5.7-5.9 V). Furthermore, this newly

Potential Applications

The present invention is ideally suited for use in Secondary Cells as an improvement over existing technologies, specifically, by improving the following applications:

- Portable power generation
- High density electronic output
- "Micro-power" generation

Benefits and Advantages

- Lower melting point (< 2^0 C)
- Wide electrochemical stability window (~ 5.7-5.9 V)
- Developed electrolyte is naturally fire retardant