



## TECHNOLOGY

# Solid Polymer Electrolyte for Safer Lithium Batteries

## OVERVIEW

Batteries have become ubiquitous elements in society powering both small consumer electronics and large hybrid automobiles. The risks of battery leakage and presence of combustible/corrosive components give rise to safety concerns, which have presented an unacceptable risk in the use of lithium batteries in submarines and other underwater vehicles. The highly reactive nature of these electrolytes necessitates the use of protective enclosures that separate the battery from the user as well as the environment limiting the internal vapor pressure to safe levels, and engineering safety measures which add to the size and bulk of the battery. Development in this sector has been hampered by the lack of solid-state materials possessing acceptable levels of safety and capacity. The ease of processing a shape-conforming polymer electrolyte would allow the production of thin film flexible batteries that could be wound into coils or processed as coatings and sheets, thus providing large area devices with integrated electronics.

University of Maryland researchers have developed a breakthrough solid polymer electrolyte having superior voltage, temperature, and mechanical stability while maintaining the conductivities of liquid electrolytes and mechanical properties of a solid. The use of this electrolyte with lithium battery technology makes possible safer and flexible power storage for consumer electronics, electric automobiles, and implantable medical devices.

Commercial advantages:

- Increased battery safety
- Enables low profile battery designs

Applications:

- Consumer electronics
- Electric automobiles
- Implantable medical devices, e.g. pacemakers

For additional information, please contact the Office of Technology Commercialization, University of Maryland College Park, via e-mail at [otc@umd.edu](mailto:otc@umd.edu) or phone at 301-405-3947.

## CONTACT INFO

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## Additional Information

## INSTITUTION

University of Maryland, College Park

**PATENT STATUS**

Patent(s) pending

**LICENSE STATUS**

Contact OTC for licensing information

**CATEGORIES**

- Power Electronics

**EXTERNAL RESOURCES**

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