# Article information:

Electrospun cellulose polymer nanofiber membrane with flame resistance properties for lithium-ion batteries - ScienceDirect
<https://www.sciencedirect.com/science/article/pii/S0144861720300813>

# Article summary:

1. A novel polyvinylidene fluoride (PVDF)/triphenyl phosphate (TPP)/cellulose acetate (CA) nanofiber membrane was fabricated by one-step electrospinning and used as a separator in lithium-ion batteries.

2. The obtained composite showed higher porosity, elevated thermal stability, superior electrolyte wettability, and improved flame resistance compared to traditional polyethylene membranes.

3. Batteries assembled with PVDF/TPP/CA membrane exhibited excellent electrochemical properties and cycle stability due to its porous structure and presence of CA and TPP.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Electrospun cellulose polymer nanofiber membrane with flame resistance properties for lithium-ion batteries” is an informative piece that provides a detailed overview of the development of a novel polyvinylidene fluoride (PVDF)/triphenyl phosphate (TPP)/cellulose acetate (CA) nanofiber membrane as a separator in lithium-ion batteries. The article is well written and provides clear explanations of the fabrication process, advantages over traditional polyethylene membranes, and the enhanced electrochemical properties of the PVDF/TPP/CA membrane.

The article is reliable in terms of its content as it provides evidence for its claims through experiments conducted on the PVDF/TPP/CA composite membranes. It also cites relevant literature to support its arguments, which adds to its credibility. However, there are some potential biases in the article that should be noted. For example, while the article does mention some drawbacks associated with PVDF membranes such as hydrophobic surface and high crystallinity, it does not explore any other possible drawbacks or risks associated with using this material for LIBs separators. Additionally, while the article does provide evidence for its claims regarding the enhanced performance of LIBs using PVDF/TPP/CA membranes, it does not provide any evidence or discussion regarding possible counterarguments or alternative solutions that could be explored further.

In conclusion, this article is generally reliable in terms of providing evidence for its claims but could benefit from exploring potential drawbacks or risks associated with using this material for LIBs separators as well as exploring alternative solutions or counterarguments that could be further investigated.

# Topics for further research:

* Lithium-ion battery separator alternatives
* Hydrophobic surface effects on LIBs
* Polyethylene membrane drawbacks
* Crystallinity of PVDF membranes
* LIBs performance optimization
* LIBs safety risks

# Report location:

<https://www.fullpicture.app/item/55f6c6a9558cb1adbf7a432d1c88880e>