# Article information:

Wet-slurry fabrication using PVdF-HFP binder with sulfide electrolytes via synergetic cosolvent approach for all-solid-state batteries - ScienceDirect
<https://www.sciencedirect.com/science/article/pii/S1385894722035331>

# Article summary:

1. PVdF-HFP is used for the first time as a polymeric binder in sulfide-based all-solid-state electrodes.

2. A cosolvent strategy is employed to enable slurry fabrication with PVdF-HFP without binder migration.

3. Electrodes with PVdF-HFP show superior performance to those with conventional NBR, and the effective volume fraction and binder distribution are key factors for determining electrochemical performance.

# 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 “Wet-slurry fabrication using PVdF-HFP binder with sulfide electrolytes via synergetic cosolvent approach for all-solid-state batteries” provides an overview of the use of poly(vinylidene fluoride-hexafluoropropylene) (PVdF-HFP) as a polymeric binder in sulfide based all solid state electrodes. The article is written in a clear and concise manner, providing detailed information on the advantages of using PVdF-HFP over conventional nitrile butadiene rubber (NBR). The authors provide evidence to support their claims, such as comparative investigations of sheet type LiNi0.70Co0.15Mn0.15O2 electrodes comprising PVdF-HFP or NBR, which demonstrate the superior performance of the former. Additionally, they highlight the advantageous features of PVdF-HFP over NBR at low temperatures and operating pressures. Finally, they demonstrate encouraging performance of pouch type LiNi0.70Co0.15Mn0.15O2/graphite ASLB full cells fabricated using PVdF-HFP.

The article appears to be unbiased and reliable overall, however there are some points that could be further explored or discussed more thoroughly such as potential risks associated with using this technology or possible counterarguments that could be presented alongside the claims made by the authors in order to present both sides equally and fairly. Additionally, it would have been beneficial if more evidence was provided to support some of the claims made by the authors such as regarding effective volume fraction and binder distribution being key factors for determining electrochemical performance or highlighting advantageous features at low temperatures and operating pressures; this would have strengthened their argument further and increased trustworthiness of their findings even more so than it already is now.

# Topics for further research:

* Polymeric binder performance comparison
* Low temperature and pressure battery performance
* All-solid-state battery fabrication
* PVdF-HFP binder advantages
* Sulfide electrolyte cosolvent approach
* LiNi0.70Co0.15Mn0.15O2/graphite ASLB full cell performance

# Report location:

<https://www.fullpicture.app/item/9602607fc686d1bf67ae0d5b0007e0cc>