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METHOD OF MANUFACTURING A HYBRID INORGANIC POLYMERIC MEMBRANE

PATENT NUMBER: WO2023180510A1

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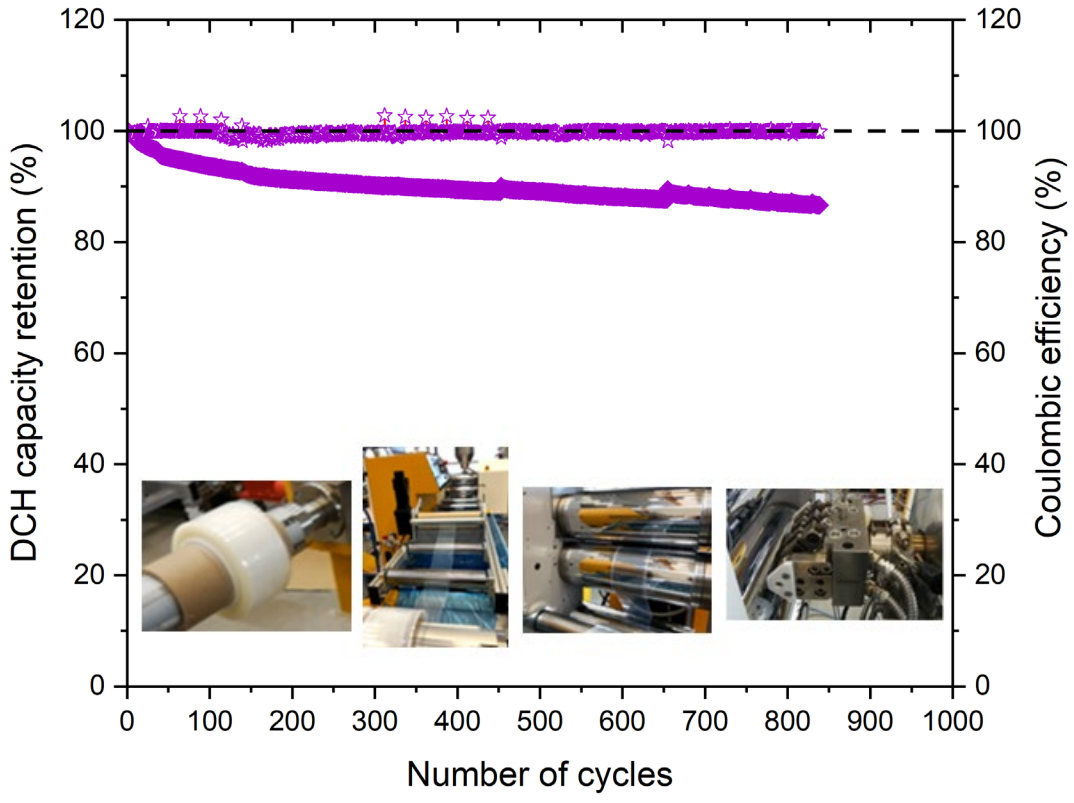
The authors of the present invention have found that the introduction of an inorganic filler into the extrusion equipment along with the other individual membrane components (an ion-conductive polymer and a lithium), which were not subjected to any pre-processing, afforded a hybrid polymeric-inorganic membrane by a continuous process and in a solvent free manner.

The addition of the inorganic filler to the polymer and lithium salt caused the efficiency and coulombic capacity values to be maintained for a longer time. Also, better results were obtained with lower thicknesses. A film thickness of about 70 microns showed better performance than the same film composition with greater thicknesses, in fact the 70 microns film was able to operate for more than 800charge/discharge cycles in a lithium metal and a LFP cathode cell.



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Discharge capacity retention % and the coulombic efficiency % of one cell assembled with a lithium metal anode, a LFP cathode and a hybrid separator processed by the method of the invention, with a thickness of 70 microns. As it can be seen, more than 800 charge/discharge cycles are obtained.

ADDED VALUE

- ✓ Solvent free method
- ✓ Reduction of processing time and operational costs
- ✓ Industrially scalable manufacturing process

APPLICATION OF THE TECHNOLOGY

- ✓ Solid electrolytes
- ✓ Electrodes

LICENSING CONTACT

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