

## How to Prepare PEO LiTFSI Solid Polymer Electrolyte (EQ-Lib-LiTFSI, EQ-Lib-PEO)

### Preparation Procedures

1. Transfer the materials and equipments into the glove box. Set up an Argon filled glove box environment with < 1 ppm H<sub>2</sub>O level for the electrolyte preparation. The active plasticizer tetraethylene glycol dimethyl ether (TEGDME) and the photo initiator 4-methylbenzophenone (MBP) with >99% purity are recommended, and can be purchased from Sigma-Aldrich.



#### Attention:

Read and follow the instructions on the safety data sheet (SDS). Store and handle the materials away from heat, sparks, and flame.

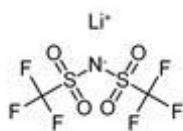
2. To prepare 10 g material for the solid polymer electrolyte, use digital balance to weigh 2.0 g LiTFSI powder, 3.6 g PEO powder, 3.6 g TEGDME liquid, and 0.8 g MBP powder, respectively.
3. Blend the mixture by grinding or ball milling at 70 °C to obtain a viscous paste-like mixture.
4. Sandwiching between two polyester sheets, hot press the powder mixture at 90 °C for 15 min to obtain a homogeneous film.
5. The film is later exposed to UV light for 6 min to activate the cross-linking.
6. Peel off the solid and non-tacky polymer film from the polyester substrate.

### Reference

- [Super Soft All-Ethylene Oxide Polymer Electrolyte for Safe All-Solid Lithium Batteries](#)

### Experimental Materials and Equipments

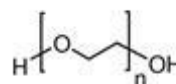
#### LiTFSI



LiTFSI (lithium bis-trifluoromethanesulfonimide)  
Powder, 10 g/bottle - EQ-Lib-LiTFSI

**Sale Price: USD\$45.00**

#### PEO



Poly(ethylene oxide) Powder for Li-Metal Battery, 250  
g/Bag - EQ-Lib-PEO

**Sale Price: USD\$149.00**

**Glove Box**



Glove Box with H<sub>2</sub>O & O<sub>2</sub> Purification System and Openable Front Window - EQ-VGB-6OP-LD

**Sale Price: RFQ**

**Balance**



Professional Grade (0.1mg Readability) Digital Balance with Wind Screen, 220g x 0.0001g - EQ-Bal-CX220-LD

**Sale Price: USD\$1,899.00**

**Hot Plate**



Programmable Stirring Hot Plate with External Temperature Probe, 7" x 7" Glass Ceramic Plate Max. 550°C - EQ-SP-H550

**Sale Price: USD\$998.00**

**Ball Mill**



Micro-Vibration Mill with Zirconia Beads and 3" Agate Mortar - MSK-SFM-12M-A

**Sale Price: USD\$986.00**

**Hot Press**



250°C Max. - 10T Hydraulic Lamination Hot Press (12x12 cm area) with Dual Temp. Controller - YLJ-HP-9

**Sale Price: USD\$2,998.00**

**UV Curing**



UV Light (350 nm) Exposure Curing Chamber - EQ-UV-EC500-LD

**Sale Price: USD\$1,198.00**