

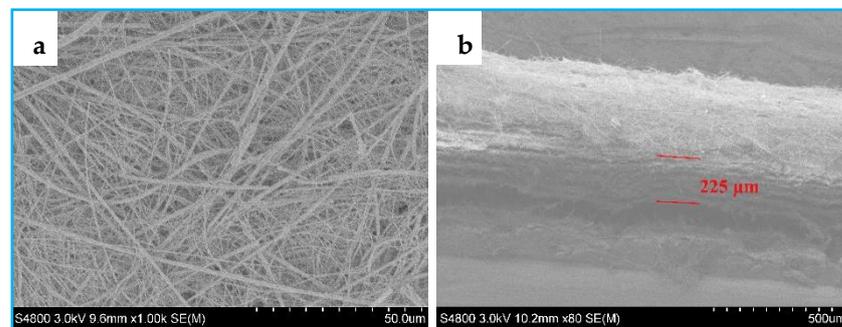
Support Information

# An Ionic Liquid Electrolyte Additive for High-Performance Lithium Sulfur Battery

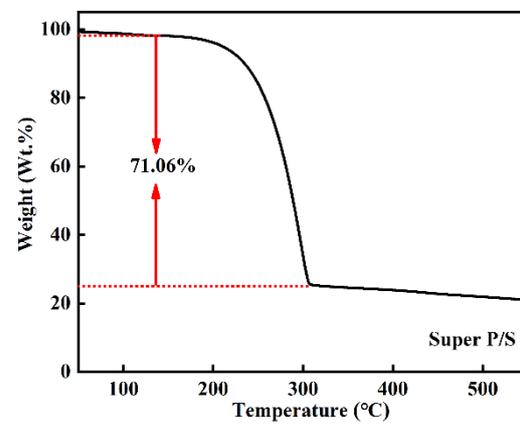
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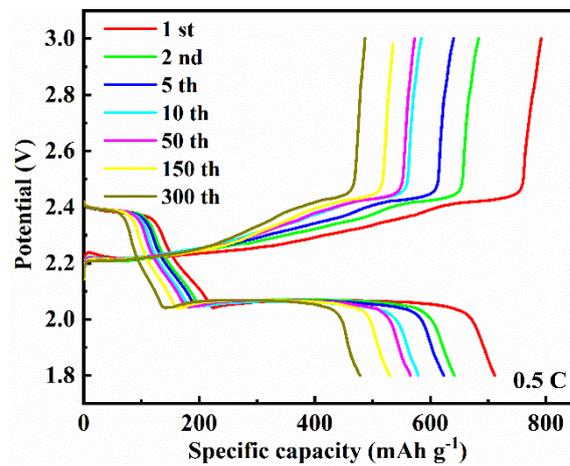
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**Figure S1.** (a) SEM images of the top surface for glass fiber separator, (b) Cross-section of the glass fiber separator.



**Figure S2.** The TG curve of Super P/S.



**Figure S3.** The charge-discharge curve of LSBs used electrolyte with 0% TDA+TFSI additive in different cycle, the current density is 0.5 C.