Supporting Information

A Class of Polysulfide Catholytes for Lithium-Sulfur Batteries: Energy Density, Cyclability, and Voltage Enhancement

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Fig. S1 Discharge capacity as a function of cycle number of the Li-PS cells with DMSO solvent and cycled with sulfur/long-chain polysulfide redox couple.

Table S1. Some physicochemical properties of the DME, DOL, and $\ensuremath{\mathsf{TEGDME}}$ solvents^1

Solvent	Boiling point (°C)	Vapor pressure at 20 °C (mm Hg)	Viscosity at 20 °C (mp.s)
DME	85	48	1.2
DOL	75	70	0.6
TEGDEM	275	< 0.01	4.1

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Table S2. Pore volume and surface area of the carbon nanofiber (CNF) and multi-wall carbon nanotube (MWCNT) materials obtained from BET analyses^{2,3}

Material	Total pore volume (cm ³ g ⁻¹)	surface area (m ² g ⁻¹)
CNF	0.140	65 - 75
MWCNT	5.206	600

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- 20 Carbon Nanofibers (CNFs) Synthesized using Vapor-grown Carbon Fiber (VGCF) Manufacturing Technology, Retrieved from <u>http://www.sigmaaldrich.com/materials-cience/nanomaterials/carbon nanofibers.html</u>.