SUPPORTING INFORMATION

Nanoencapsulation of Organic Phase Change Materials in Poly(3,4-Ethylenedioxythiophene) for Energy Storage and Conversion

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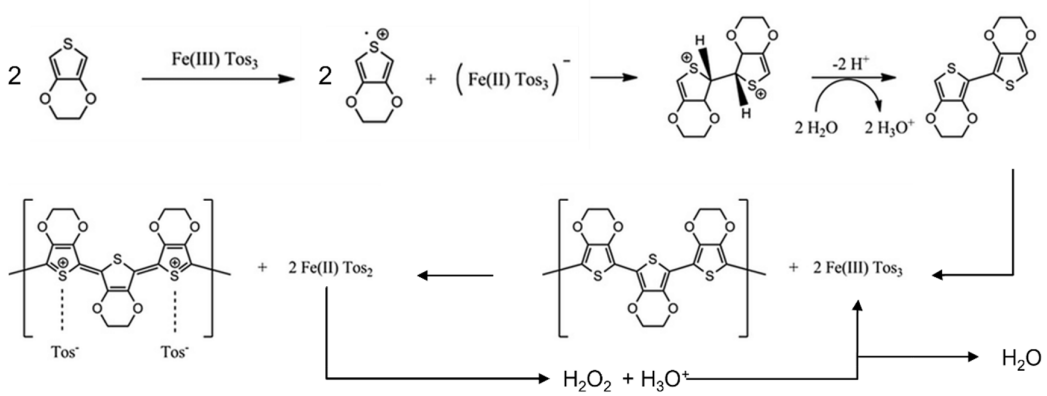
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1. Oxidative Polymerization of 3,4-Ethylenedioxythiophene



Scheme S1. Scheme of oxidative polymerization of ethylenedioxythiophene (EDOT).

2. Optimization of Nanoparticle Preparation: TEM Micrographs

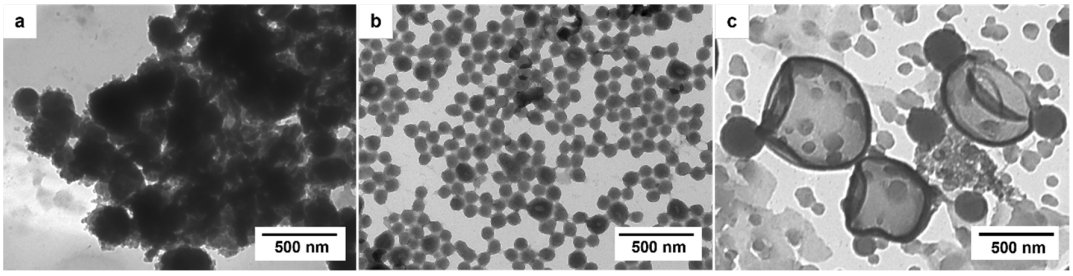


Figure S1. TEM micrographs of PEDOT nanoparticles prepared with poly(diallyldimethylammonium chloride) (PDADMAC) of different molecular weights as a stabilizer: (a) average M_w < 100,000, (b) average M_w = 200,000–350,000, and (c) M_w = 500,000.

3. TEM and SEM Micrographs of PEDOT Nanoparticles

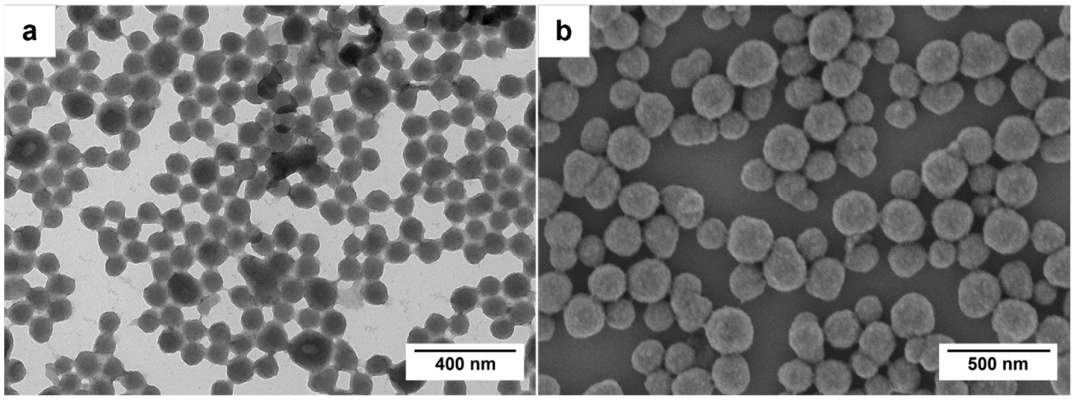


Figure S2. TEM (a) and SEM (b) micrographs of PEDOT particles prepared with PDADMAC as a stabilizer of average molecular weight M_w = 200,000–350,000.

4. TGA Curves of PEDOT Nanoparticles with and without PCM

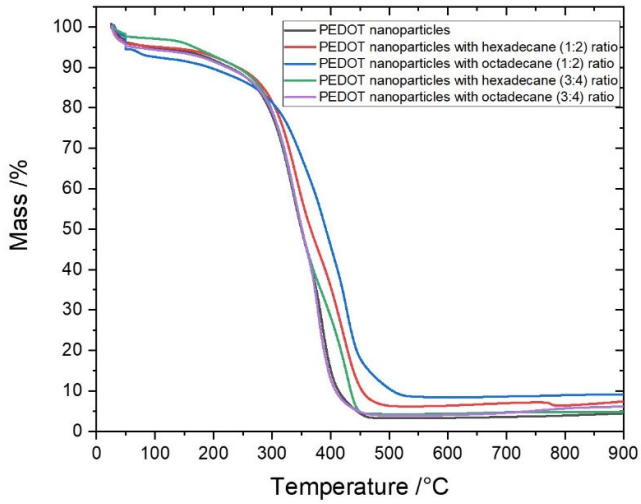


Figure S3. TGA curves of PEDOT nanoparticles prepared without and with PCM: no alkane (black), EDOT:hexadecane ratio of 2:1 (red), EDOT:octadecane ratio of 2:1 (blue), EDOT:hexadecane ratio of 4:3 (green), and EDOT:octadecane ratio of 4:3 (magenta).

5. X-ray Diffraction Patterns

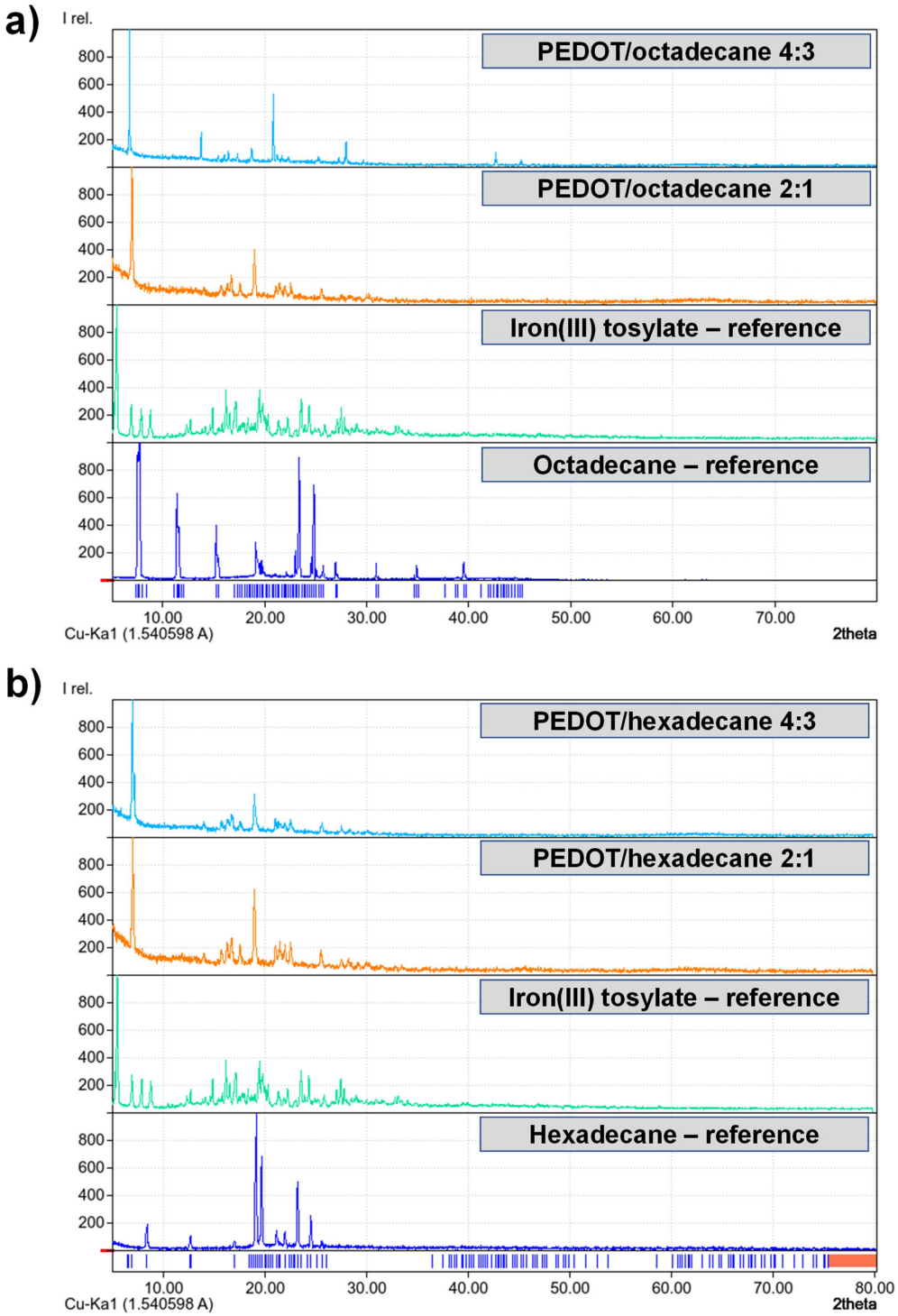


Figure S4. X-ray diffraction patterns of (a) PEDOT/octadecane and (b) PEDOT/hexadecane nanoparticles prepared at EDOT:PCM ratios of 2:1 and 4:3. Octadecane, hexadecane, and iron(III) tosylate are also included as references.

6. DSC Curves of PEDOT Nanoparticles

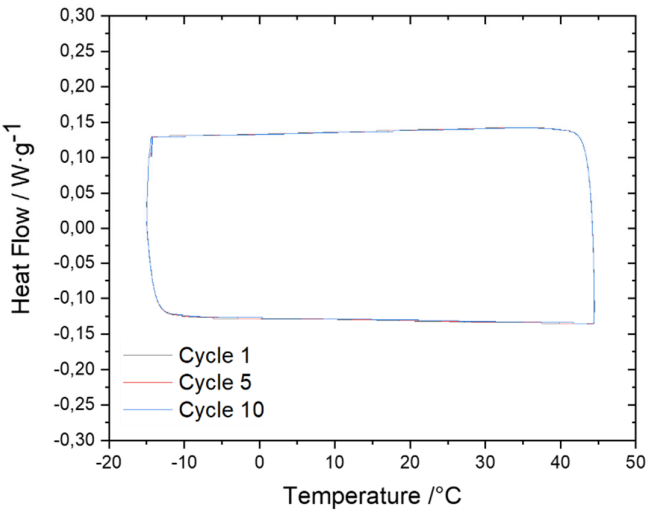


Figure S5. DSC curves of PEDOT nanocapsules without PCM.

7. System for Heat Transfer Measurement

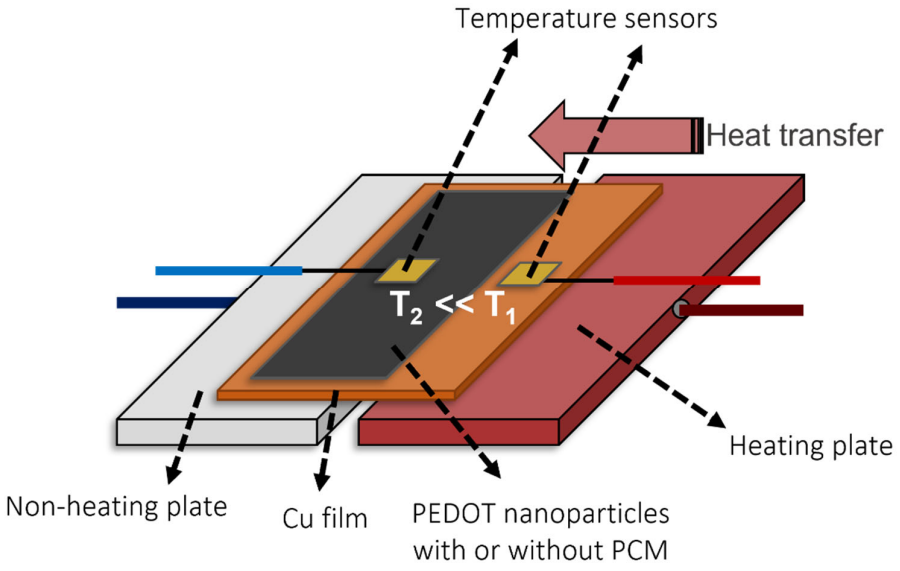


Figure S6. Representation of the heat transfer measurement system on the Cu film.