

Nanostructured and photochromic material for environmental detection of metal ions

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Supplementary Material 1:

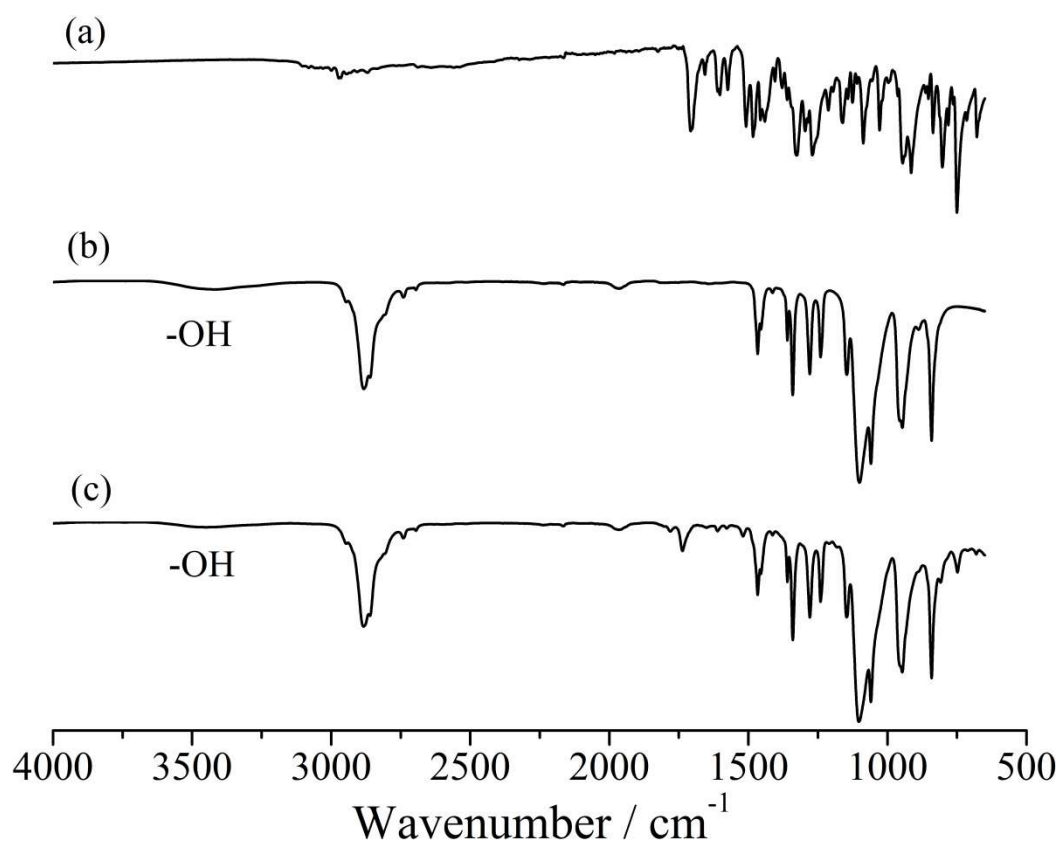


Figure S1. FTIR-ATR spectra of (a) SPCOOH, (b) PEG 2000 and (c) PEGSP2.

Supplementary Material 2:

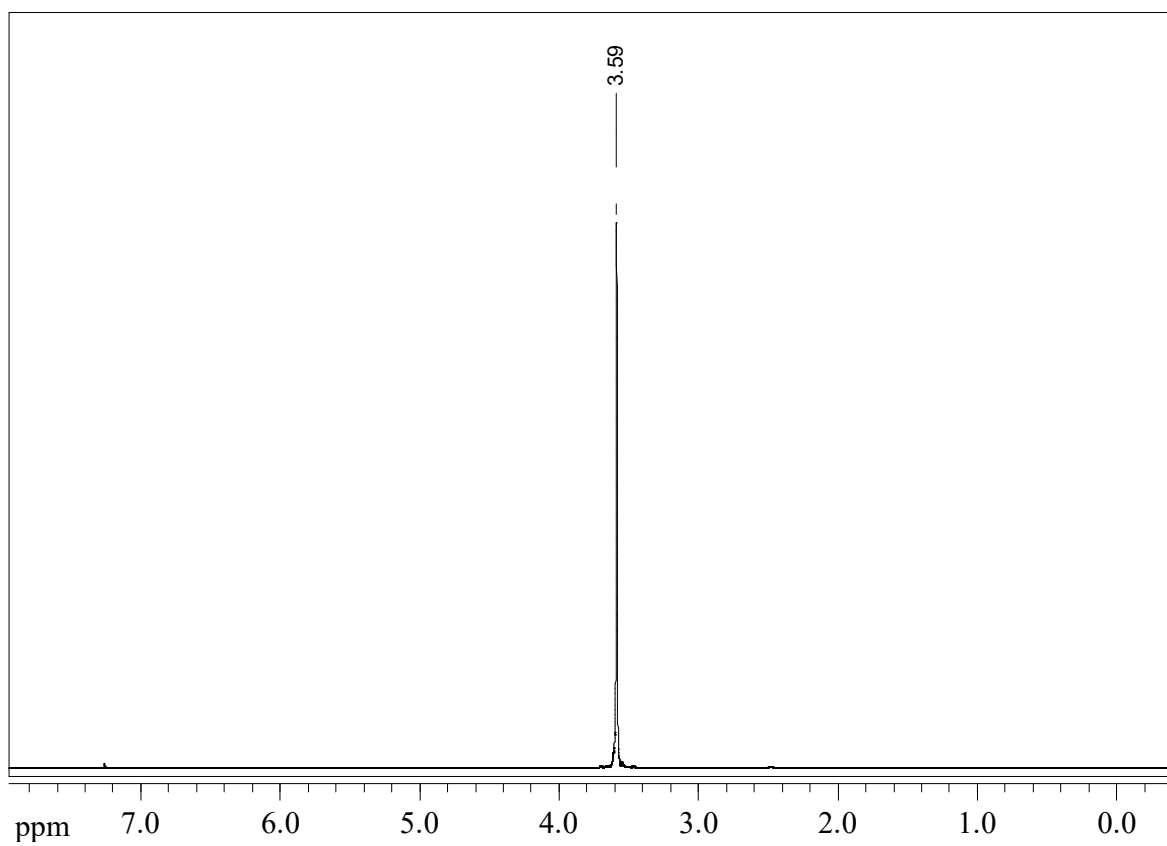


Figure S2. ^1H NMR spectrum of PEG 2000 in CDCl_3 , at 600 MHz and 27 °C.

Supplementary Material 3:

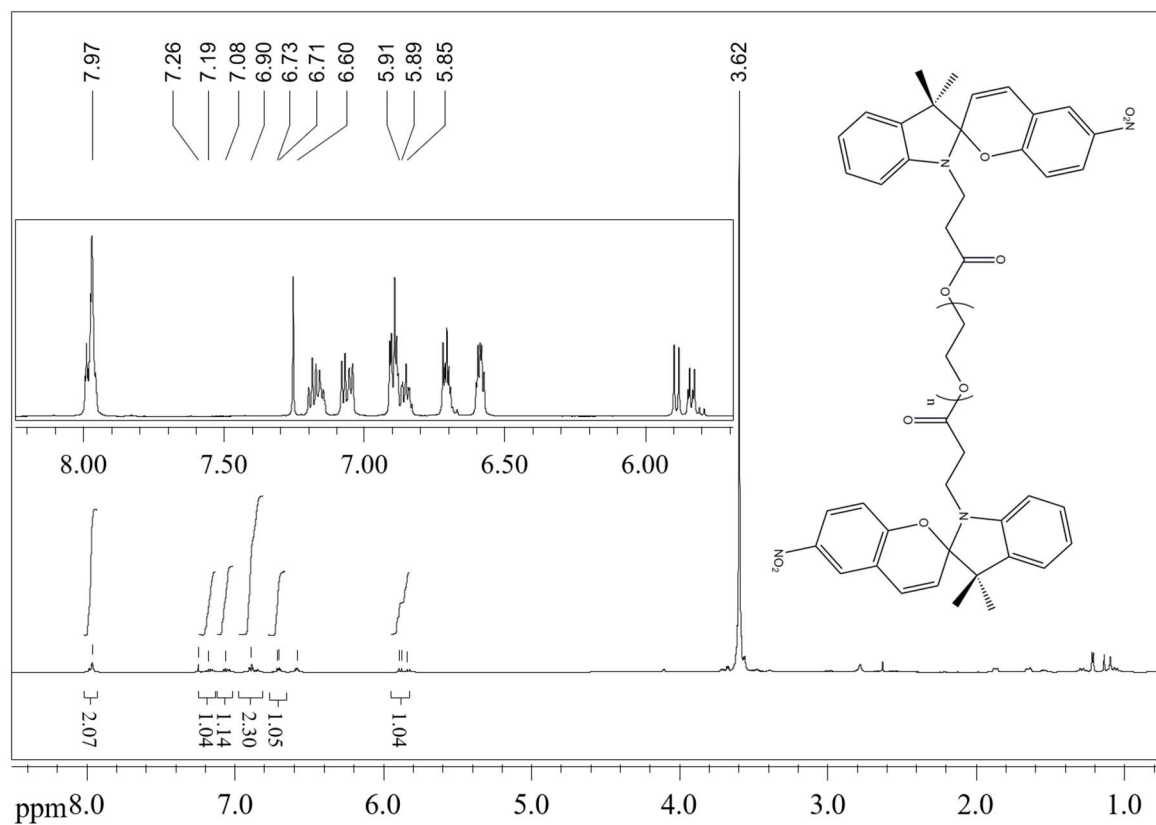


Figure S3. ^1H NMR spectrum of PEGSP2 in CDCl_3 , at 600 MHz and 27 °C and proposed structure for PEGSP2.

Supplementary Material 4:

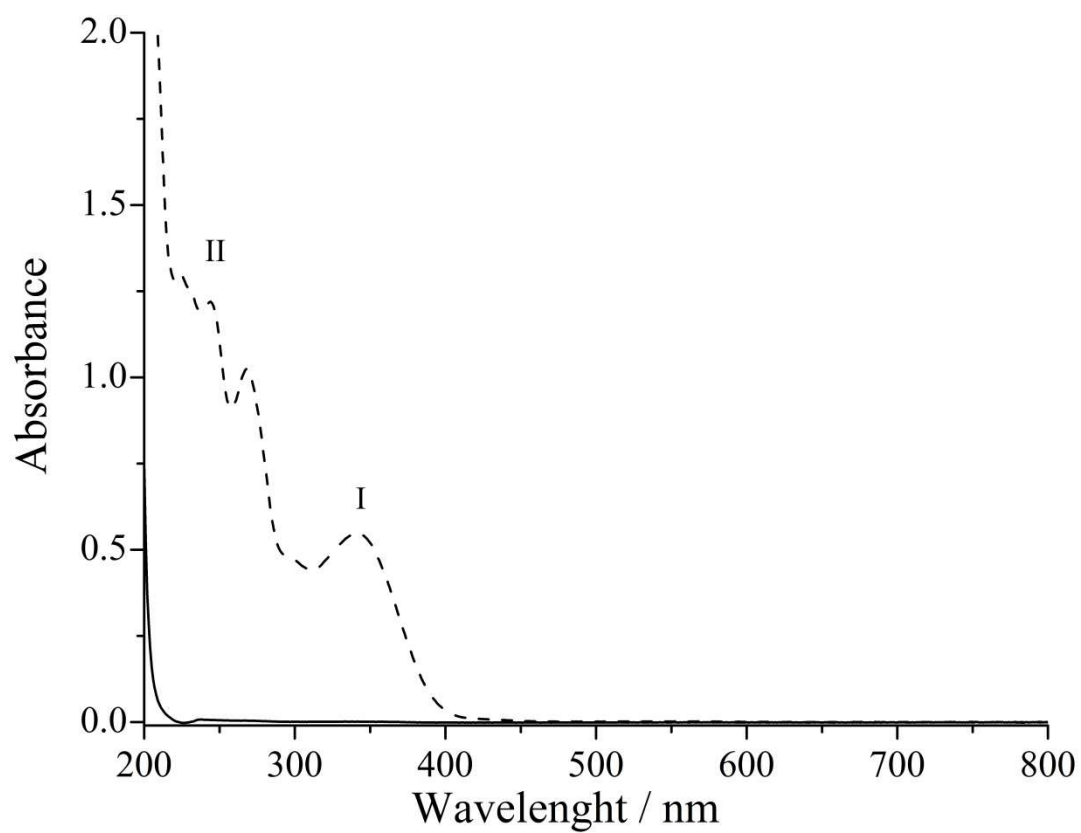


Figure S4. Electronic spectra of PEG 2000 at 2.1 mmol.L⁻¹ and PEGSP2 at 0.062 mmol.L⁻¹.

Supplementary Material 5:

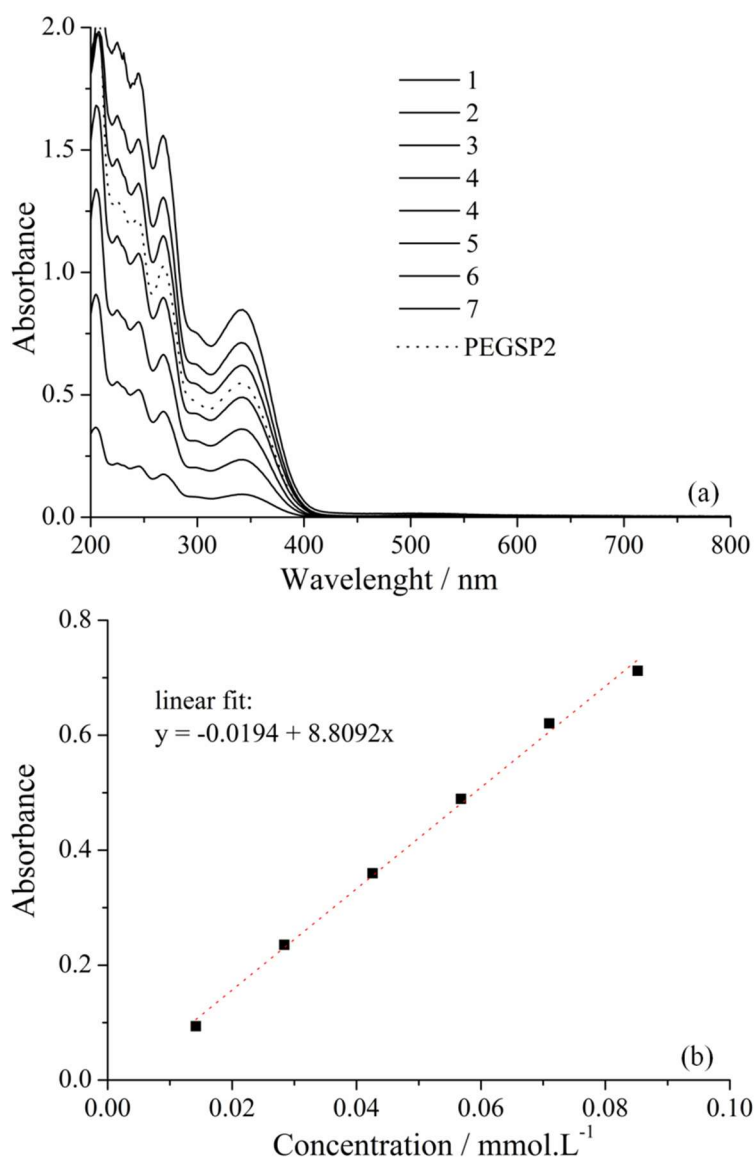


Figure S5. (a) Electronic spectra of SPCOOH dilutions from 0.014 to 0.71 mmol.L⁻¹ (solid lines) and PEGSP2 electronic spectrum at 0.031 mmol.L⁻¹ (dot line) and (b) calibration curve and linear fit for SPCOOH. All spectra were obtained in MeCN solvent using the maximum wavelength at 341 nm.

Supplementary Material 6:

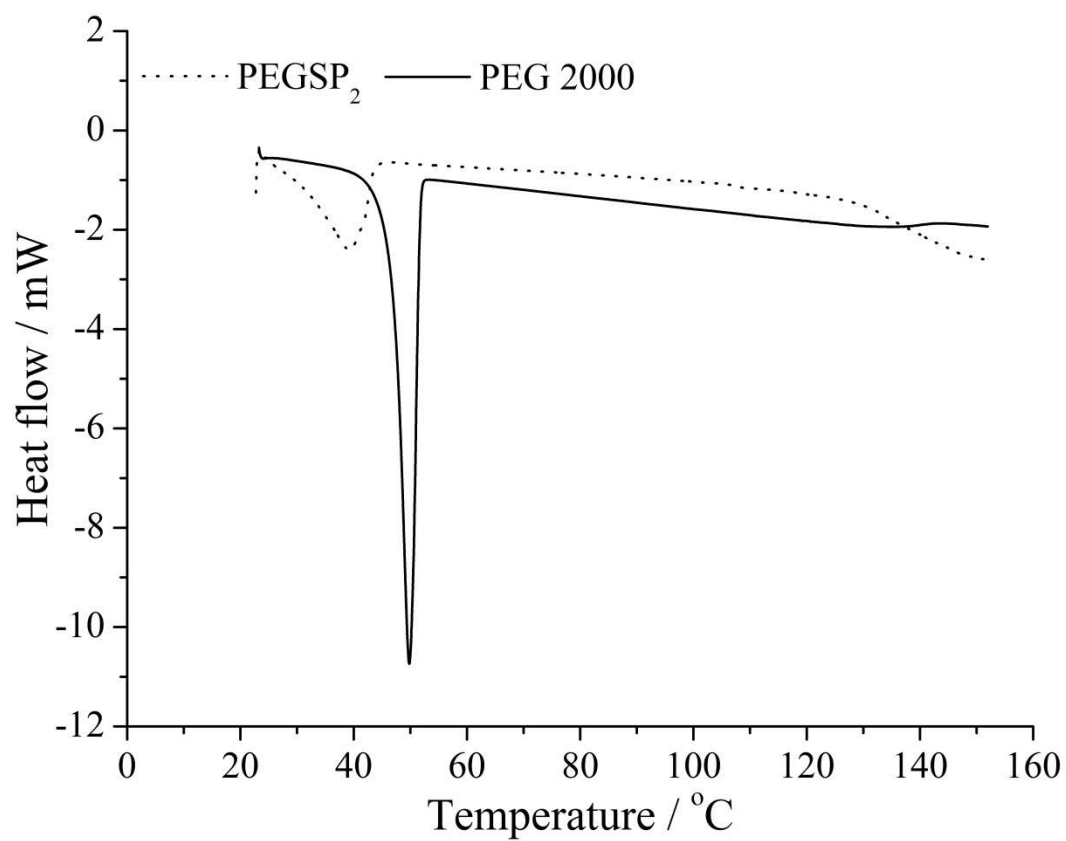


Figure S6. DSC curves for PEG 2000 and PEGSP2.

Supplementary Material 7:

Table S1. Calculations of $\Delta_{\text{fus}}H$ of PEGSP2:

Parameters	Values
Mass	0.012887 g
X₁	23.521673 °C
X₂	46.082676 °C
I₁	1 s
I₂	1463 s
Area	-30.183748048742 mW
X₀	39.291683 °C
$\Delta_{\text{fus}}H = [\text{Area} * (\text{I}_1 - \text{I}_2)] / \text{Mass}$	3.424 J.g ⁻¹

Table S2. Calculations of $\Delta_{\text{fus}}H$ of PEG 2000:

Parameters	Values
Mass	0.009951 g
X₁	27.507933 °C
X₂	53.729233 °C
I₁	1 s
I₂	1720 s
Area	-54.278186629807 mW
X₀	49.816132 °C
$\Delta_{\text{fus}}H = [\text{Area} * (\text{I}_1 - \text{I}_2)] / \text{Mass}$	9.376 J.g ⁻¹

Supplementary Material 8:

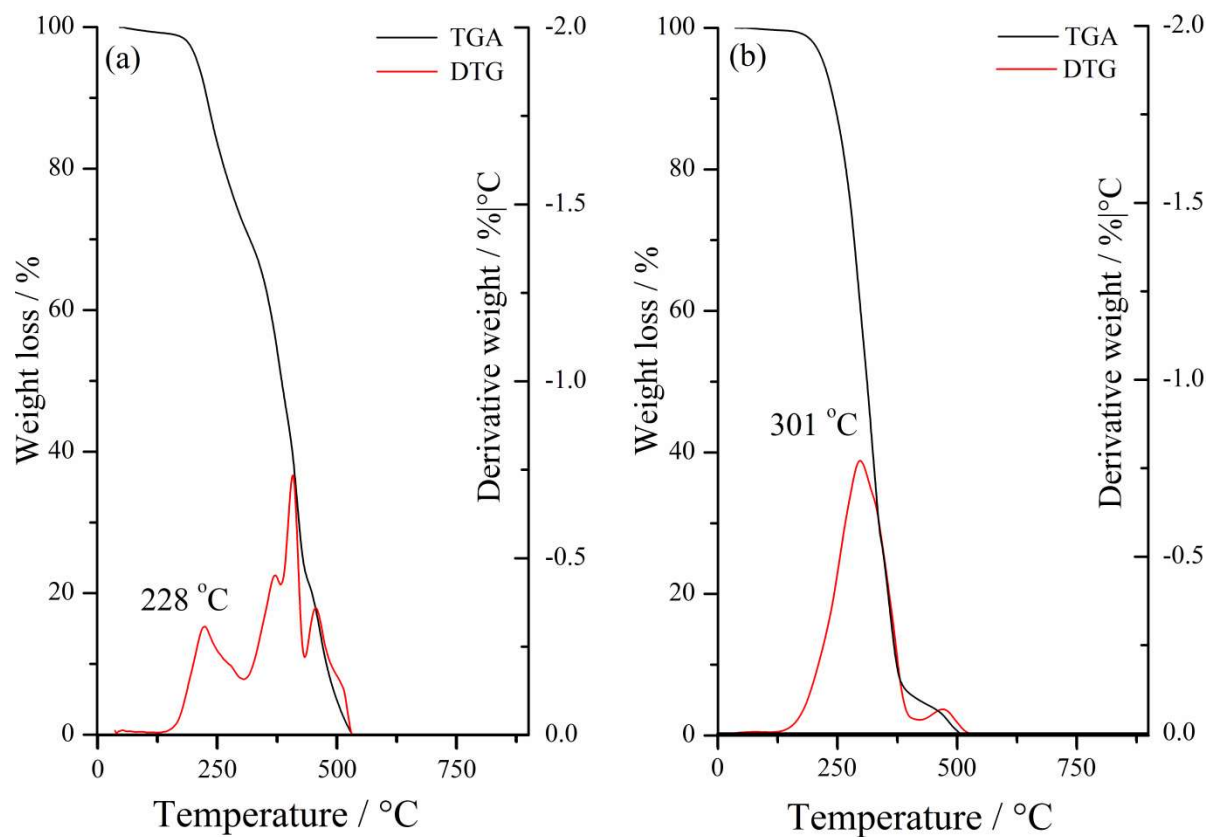


Figure S8. (a) TGA/DTG of PEGSP2 and (b) TGA/DTG of PEG 2000.

Supplementary Material 9:

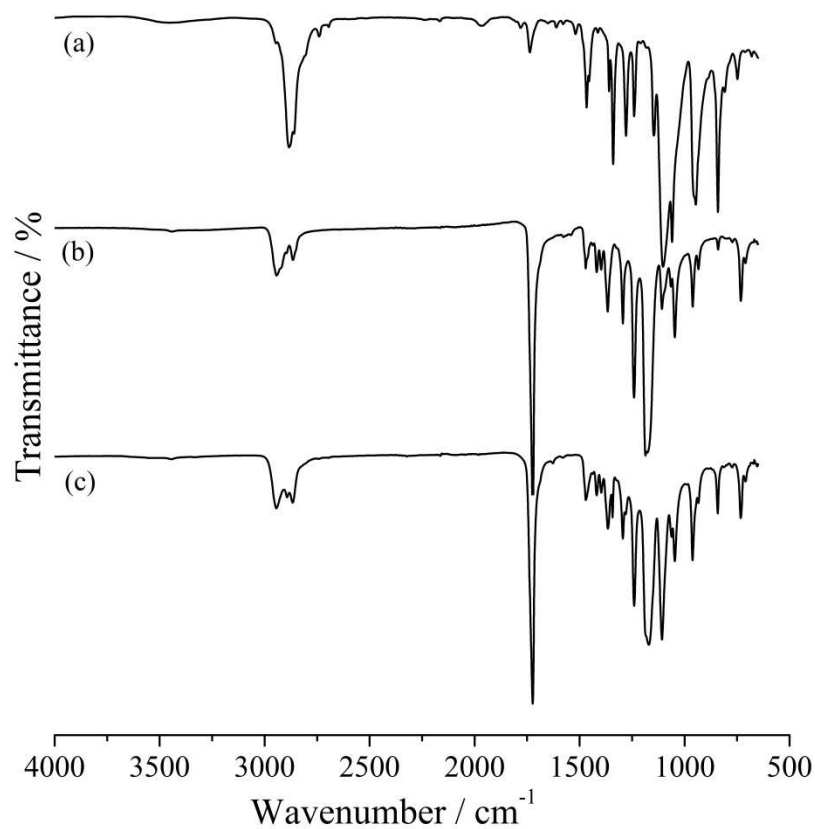


Figure S9. FTIR-ATR spectra of (a) PEGSP2 polymer, and electrospun fibers of (b) PCL + PEGSP2 30% wt and (c) pure PCL.

Supporting Information 10:

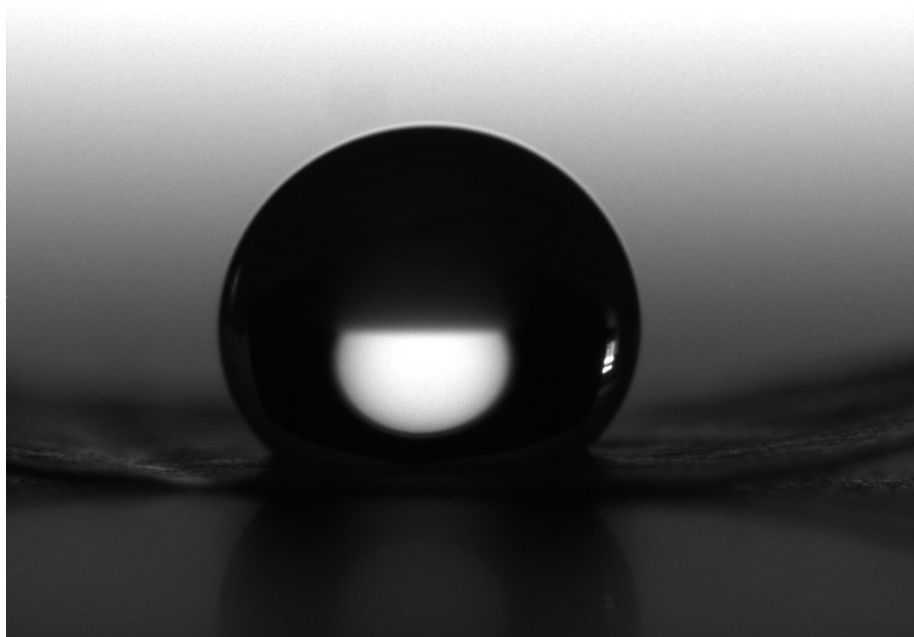


Figure S10. DSA (water contact angle) for pure PCL electrospun nanofibers.