frontiers

Supplementary Material

Fast and selective post-polymerization modification of conjugated polymers using dimethyldioxirane

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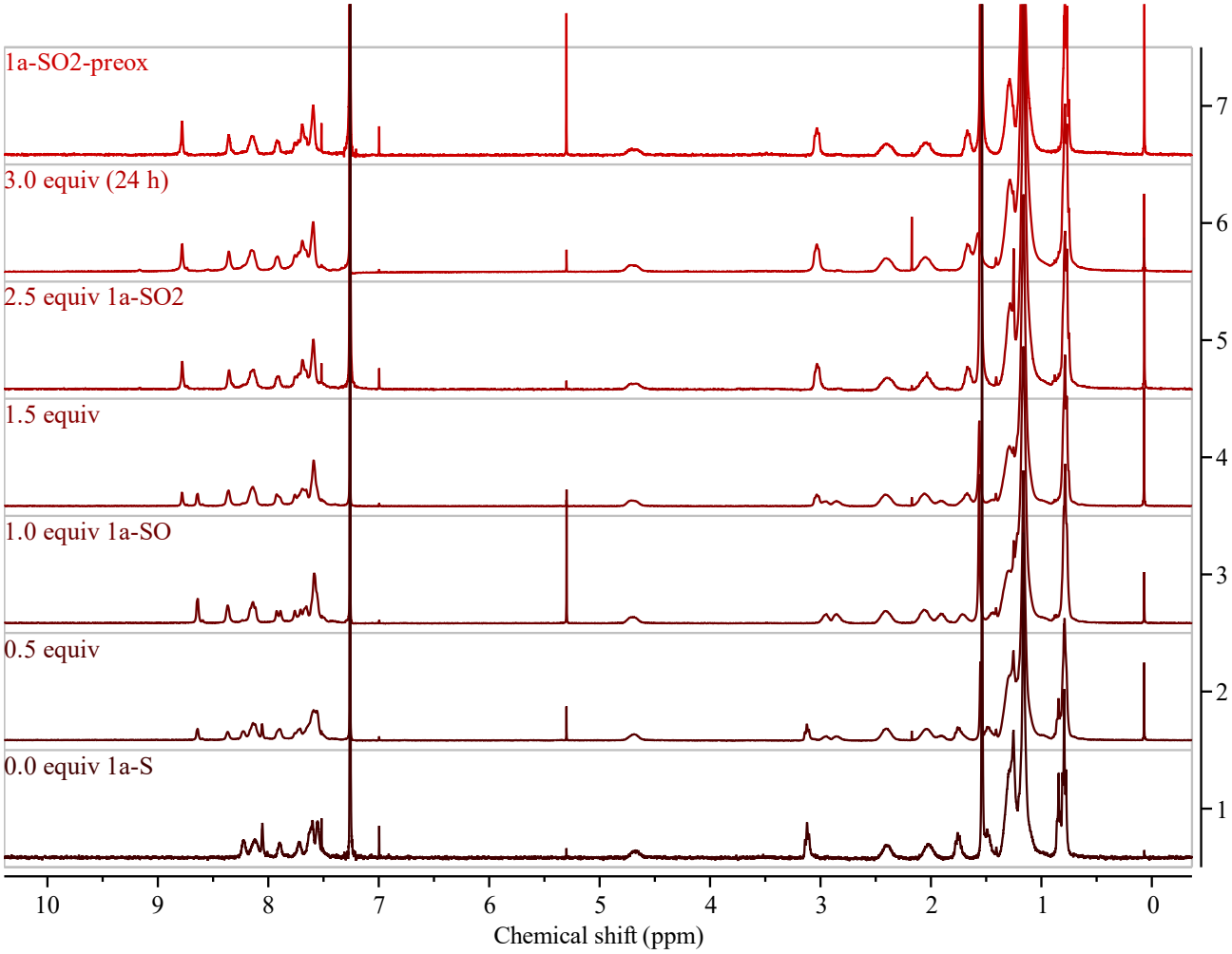
1 Instrumentation

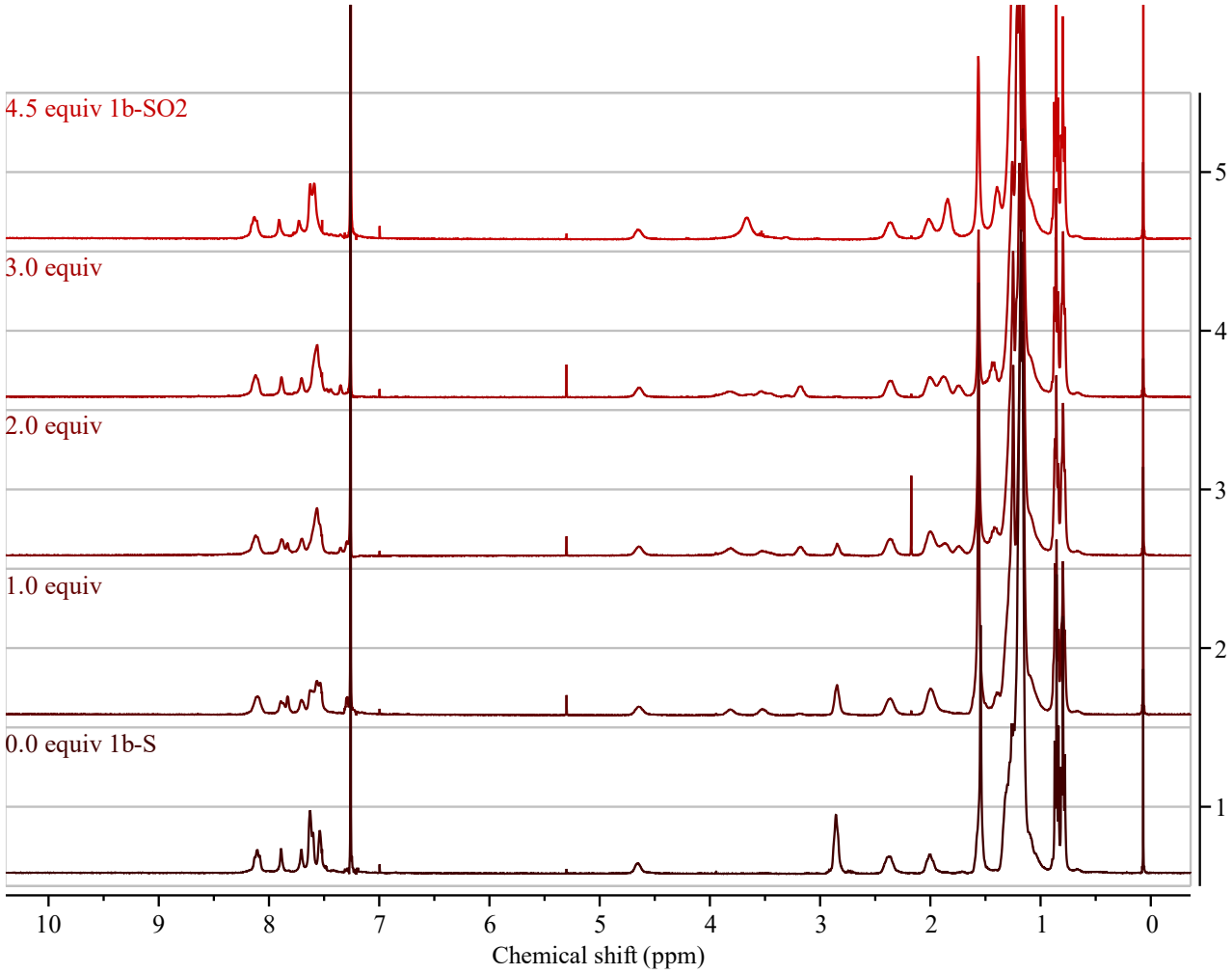
NMR spectra were recorded on a Bruker AV-400 spectrometer (400 MHz) and a Bruker Avance DRX-400 spectrometer (400 MHz).

Mass average (M_w) and number average (M_n) molecular weights were determined with an Agilent-Technologies 1260 Infinity GPC System with 1260 RID and DAD VL attachments. Measurements were performed at 80°C, using analytical grade chlorobenzene as eluent with two PLgel 10 µm MIXED B columns in series. Molar mass, as a function of elution time through the columns, was calibrated using known molecular weight Agilent EasiVial narrow dispersity polystyrene standards. Samples were prepared using analytical grade chlorobenzene in concentrations of ~1–2 mg mL^{-1} and filtered with VWR PES membrane 0.45 µm syringe filters before submission. An injection volume of 50 µL and GPC flow rate of 1.00 mL min^{-1} was used.

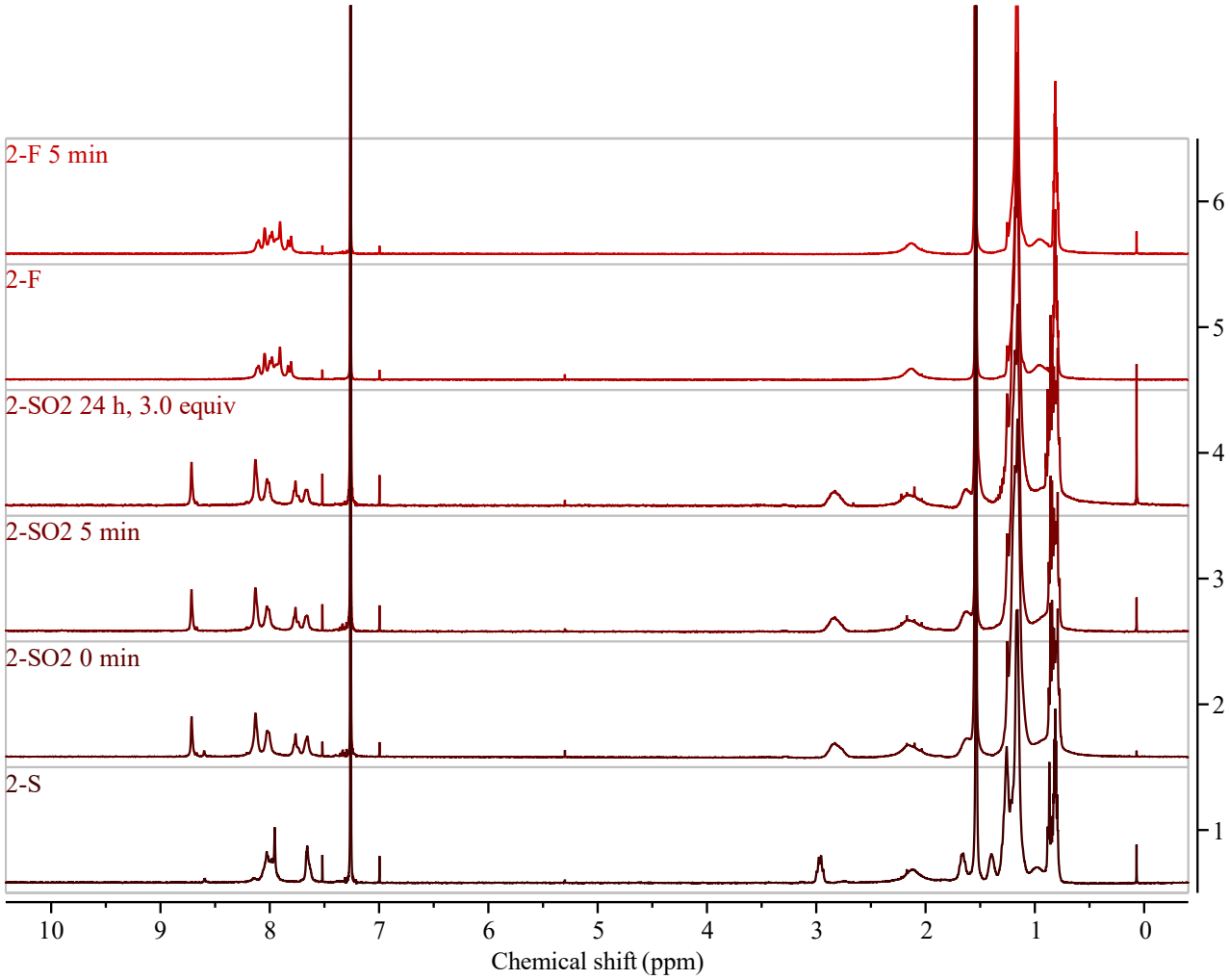
2 NMR spectra



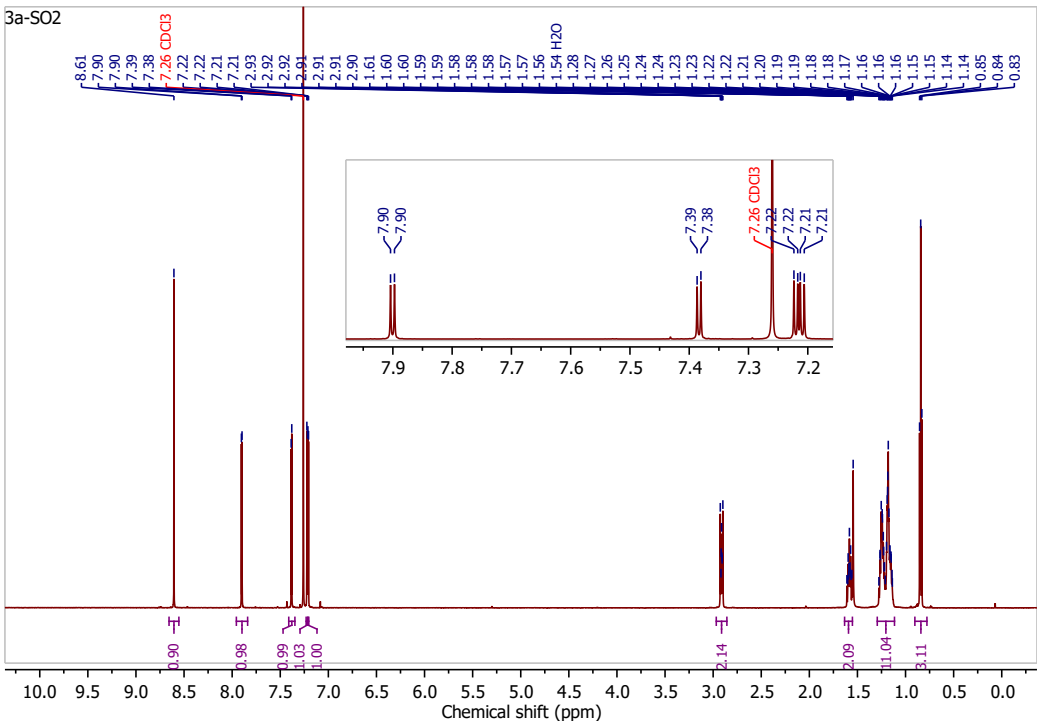
Supplementary Figure 1. ^{1}H NMR spectra of **1a-S**, the corresponding polymers modified with different amounts of DMDO, and **1a-SO$_2$-preox**.



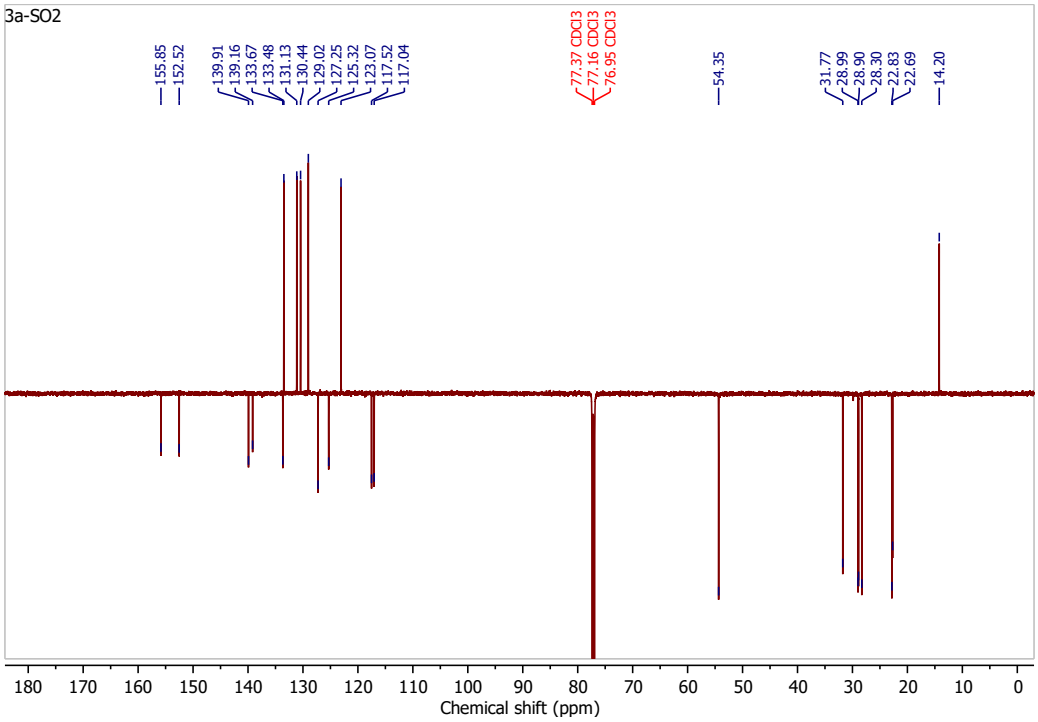
Supplementary Figure 2. ^{1}H NMR spectra of **1b-S** and the corresponding polymers modified with different amounts of DMDO.



Supplementary Figure 3. ^{1}H NMR spectra of **2-S**, the corresponding polymers modified with DMDO for different times, **2-F**, and **2-F** treated with DMDO.

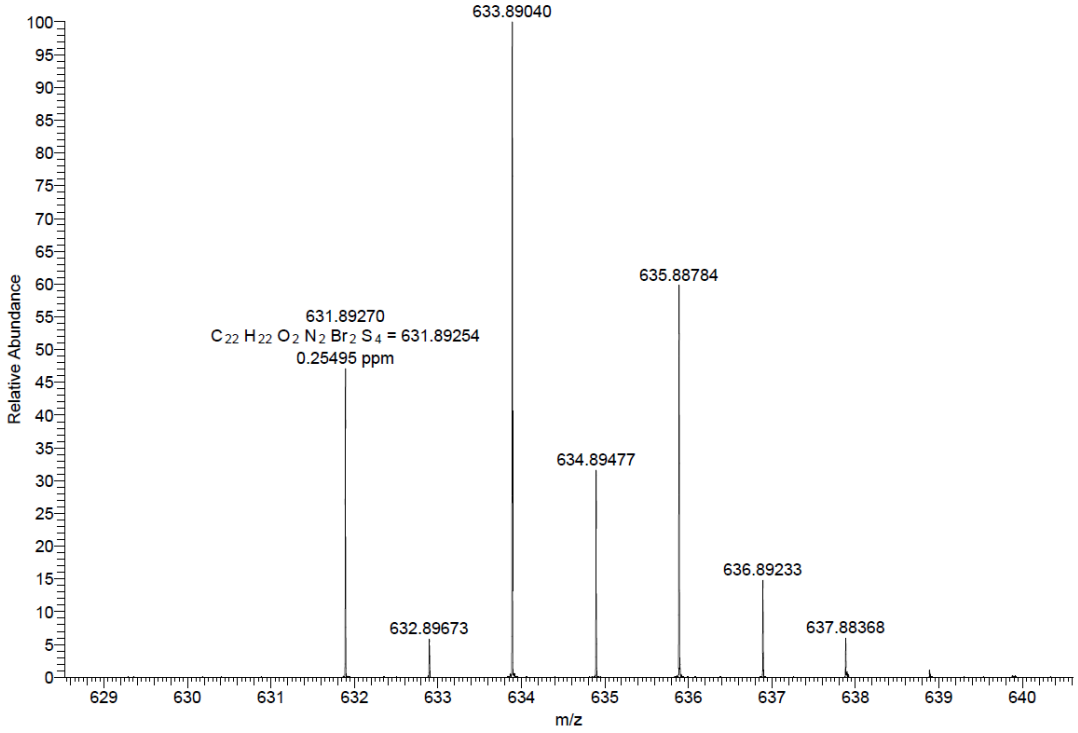


Supplementary Figure 4. ^{1}H NMR spectrum of monomer **3-SO$_2$**.



Supplementary Figure 5. ^{13}C(APT) NMR spectrum of monomer **3-SO$_2$**.

3 High-resolution mass spectrometry (HRMS)



Supplementary Figure 6. HRMS measurement of monomer **3-SO2**.