Supporting Information

Molecular Design of a Discrete Chain-folding Polyimide for Controlled Inkjet Deposition of Supramolecular Polymers

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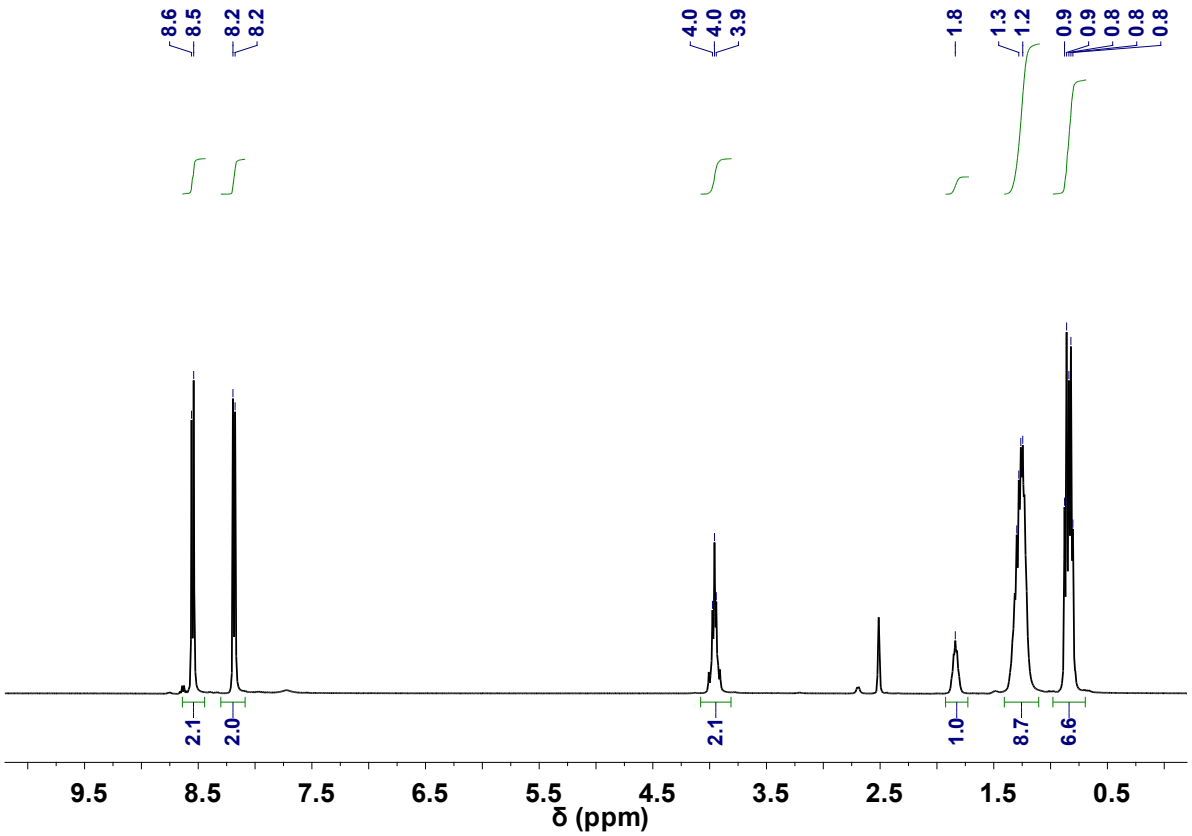
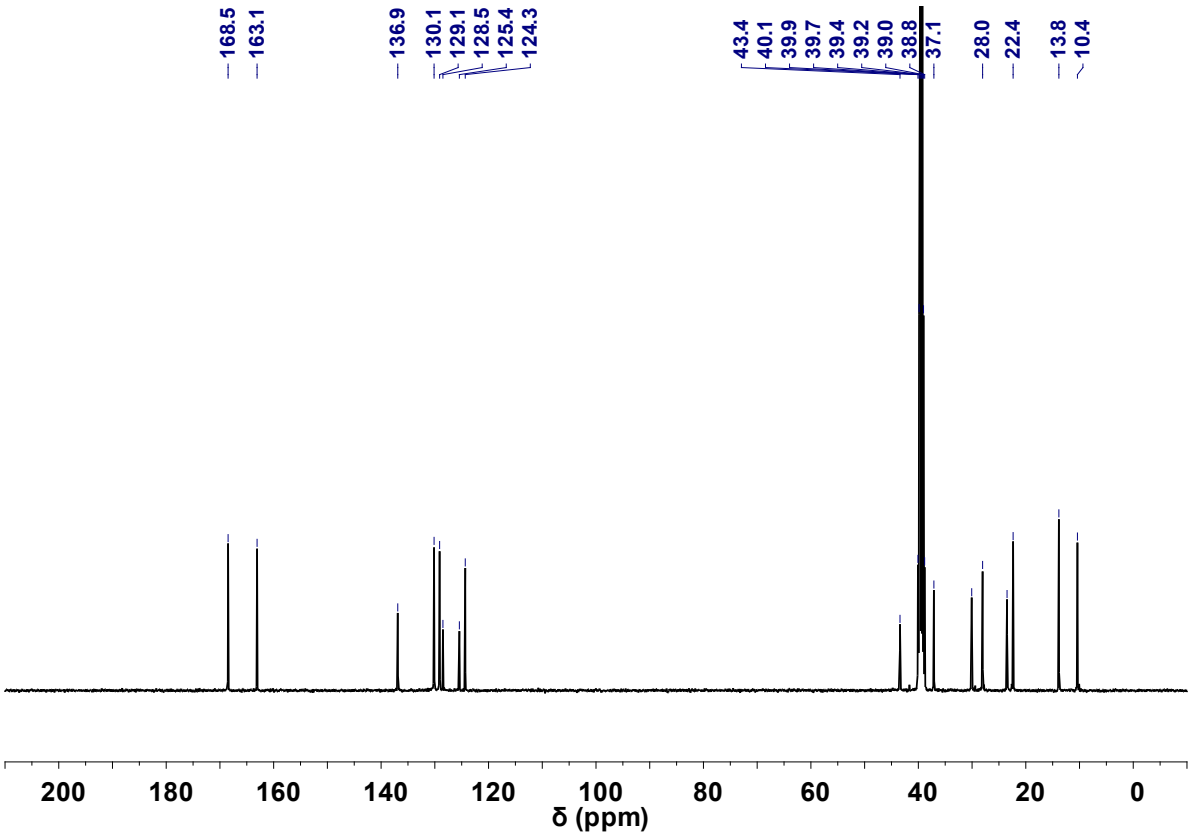
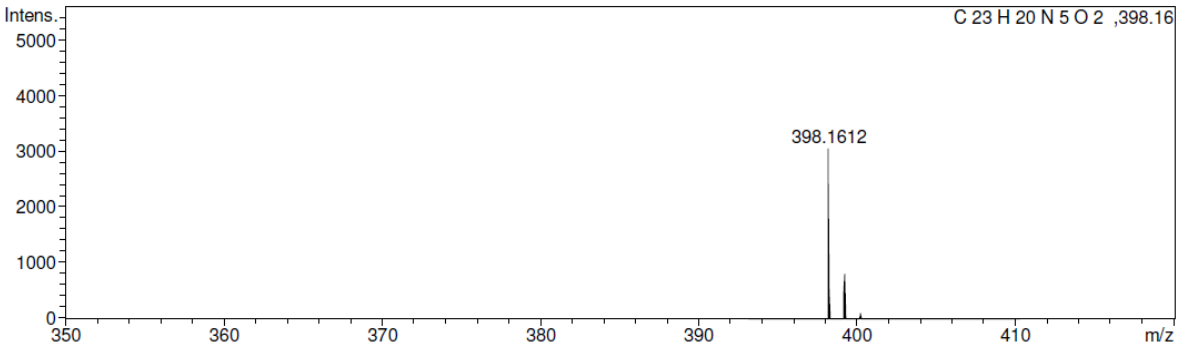
Contents



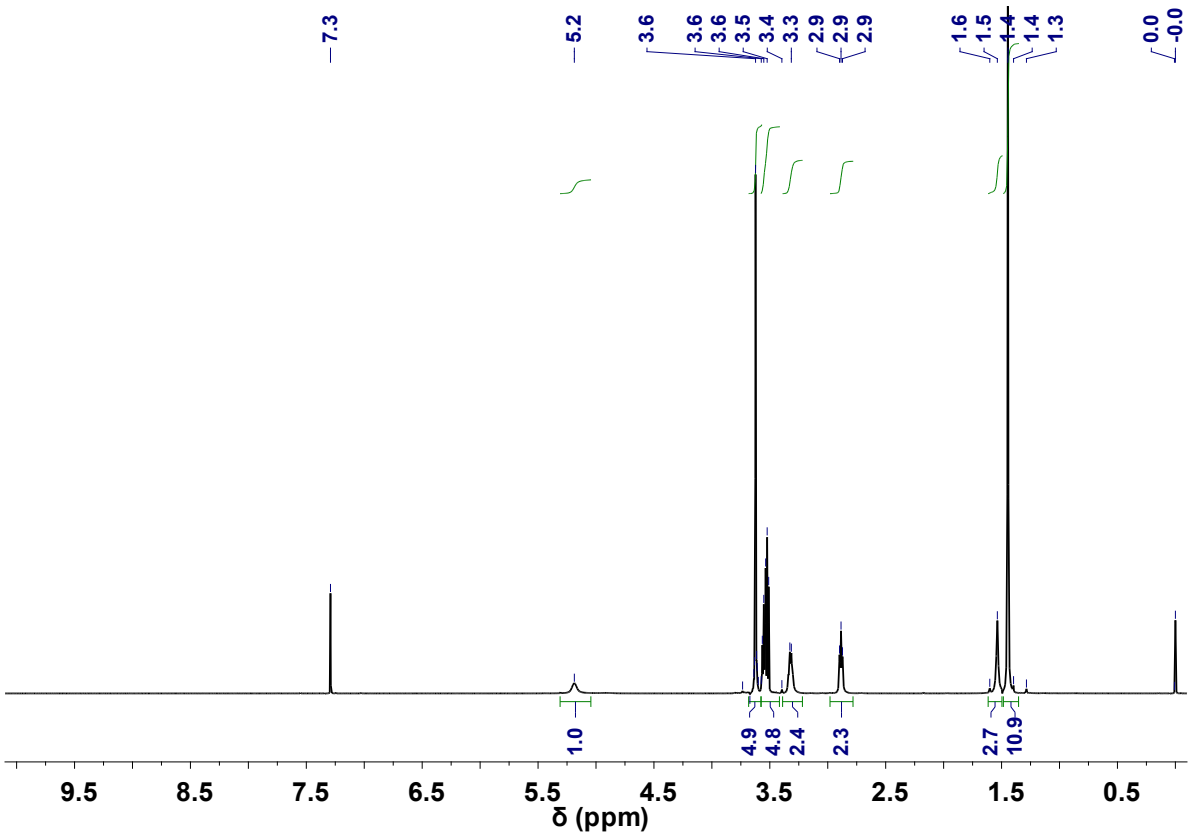
S1: ^{1}H NMR spectra of the ethylhexyl imide-anhydride **4**.



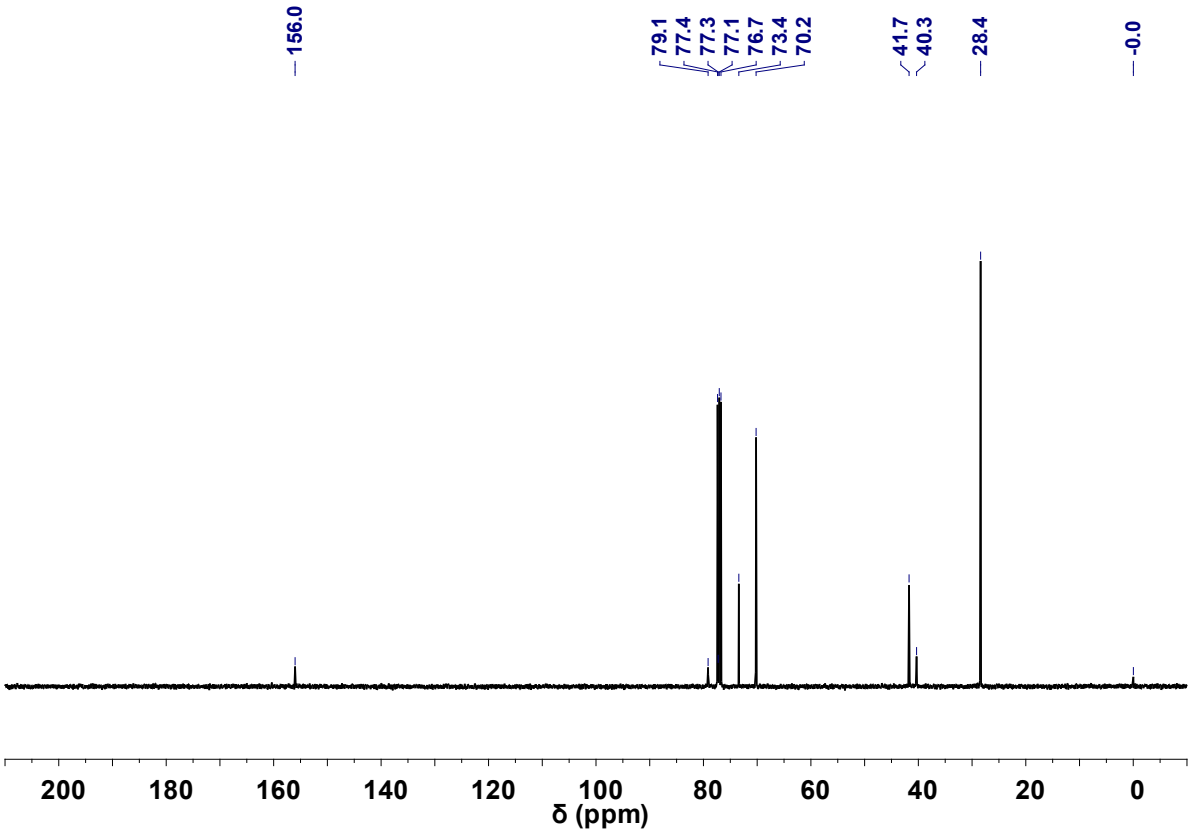
S2: ^{13}C NMR spectra of the ethylhexyl imide-anhydride **4**.



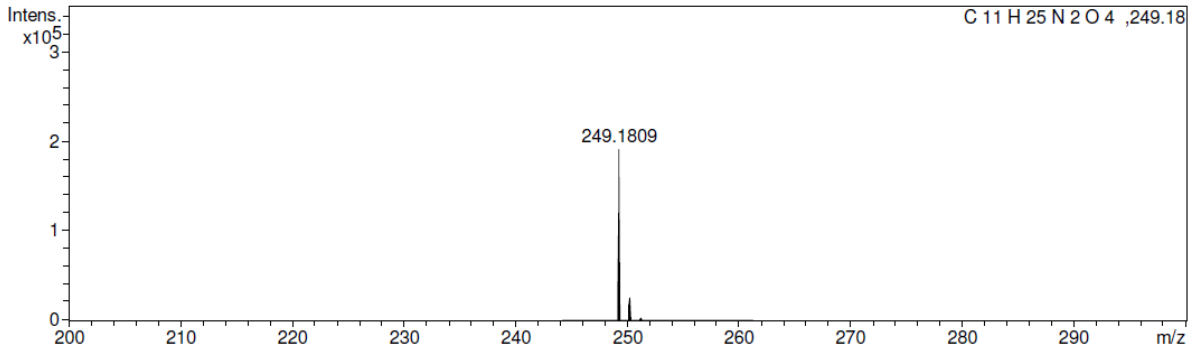
S3: Mass spectra of the ethylhexyl imide-anhydride **4**.



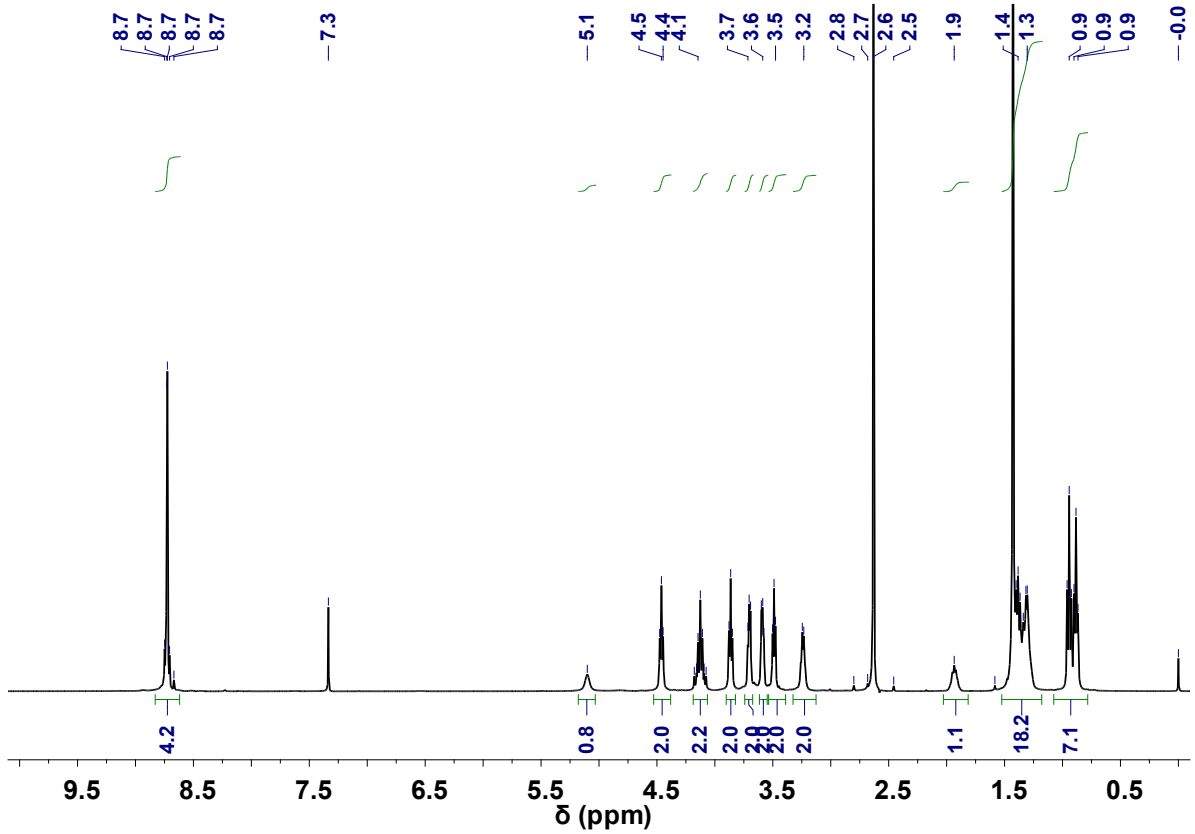
S4: [1]H NMR spectra of mono-Boc-protected 2,2′-(ethylenedioxy)bis(ethylamine) **6**.



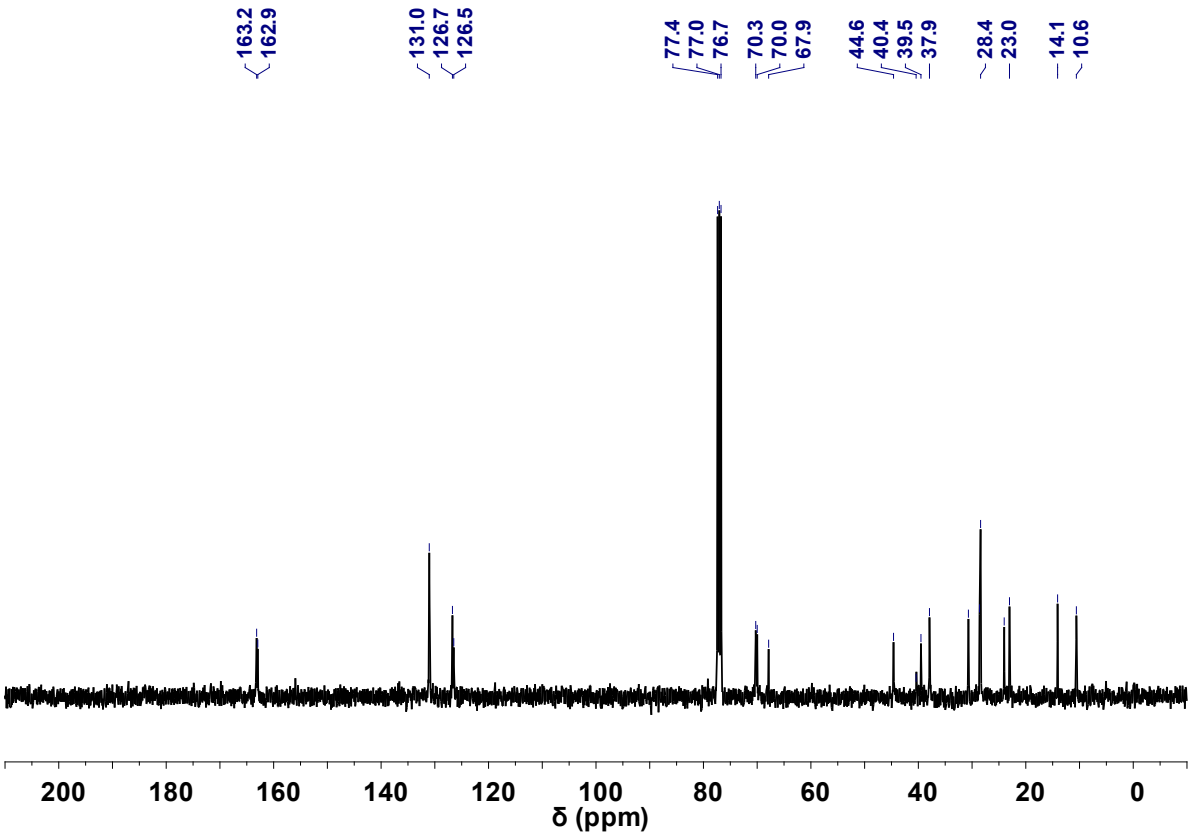
S5: [13]C NMR spectra of mono-Boc-protected 2,2′-(ethylenedioxy)bis(ethylamine) **6**.



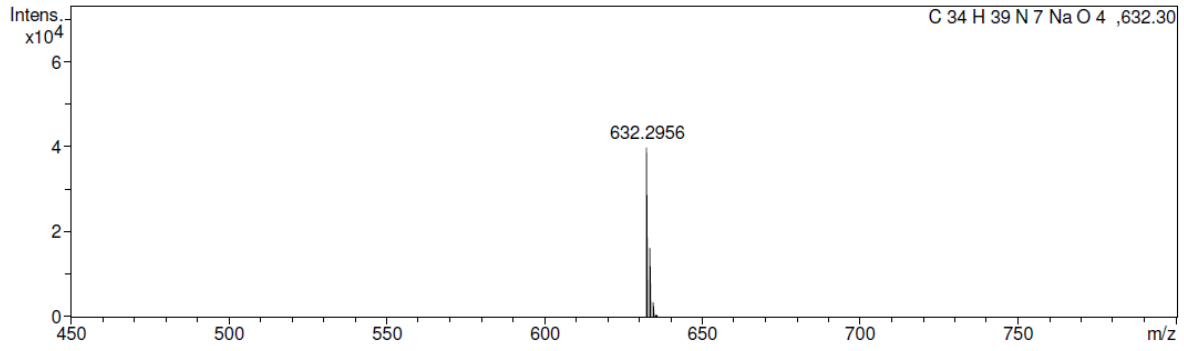
S6: Mass spectra of mono-Boc-protected 2,2′-(ethylenedioxy)bis(ethylamine) **6**.



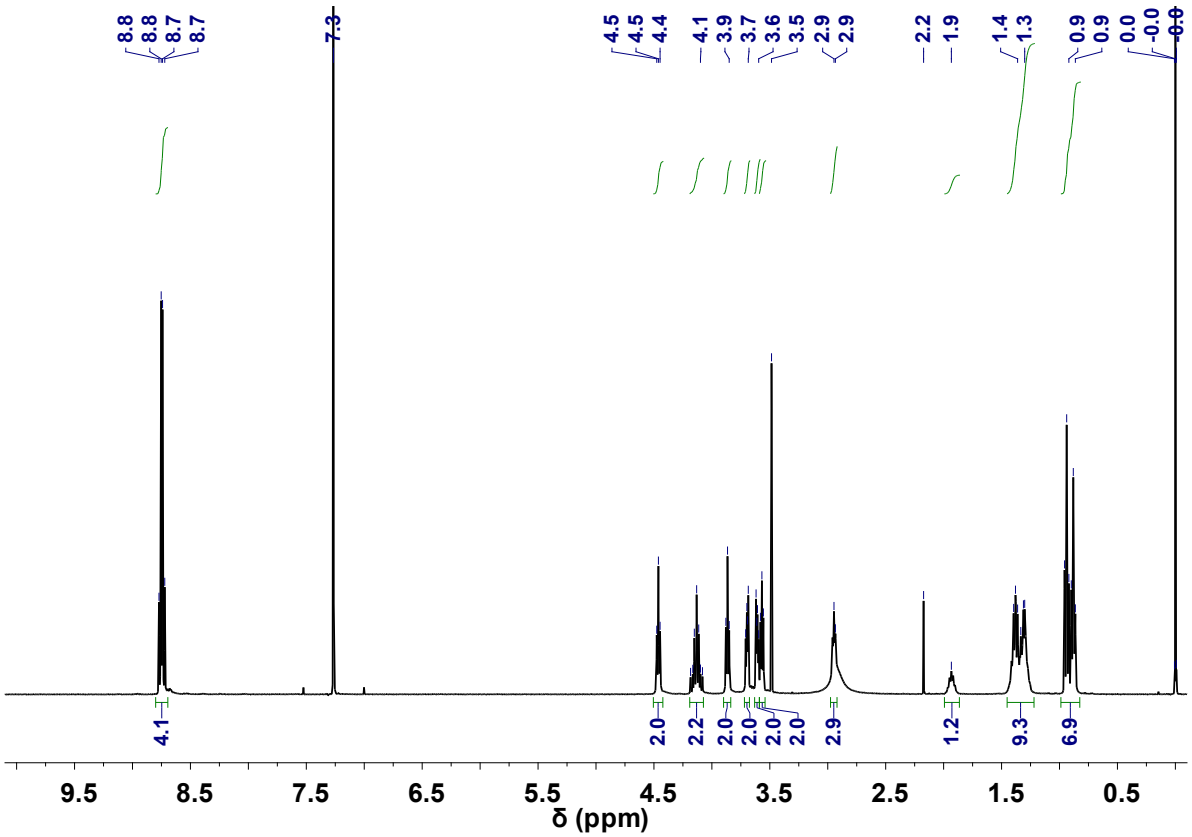
S7: ^{1}H NMR spectra of Boc-protected diimide **7**.



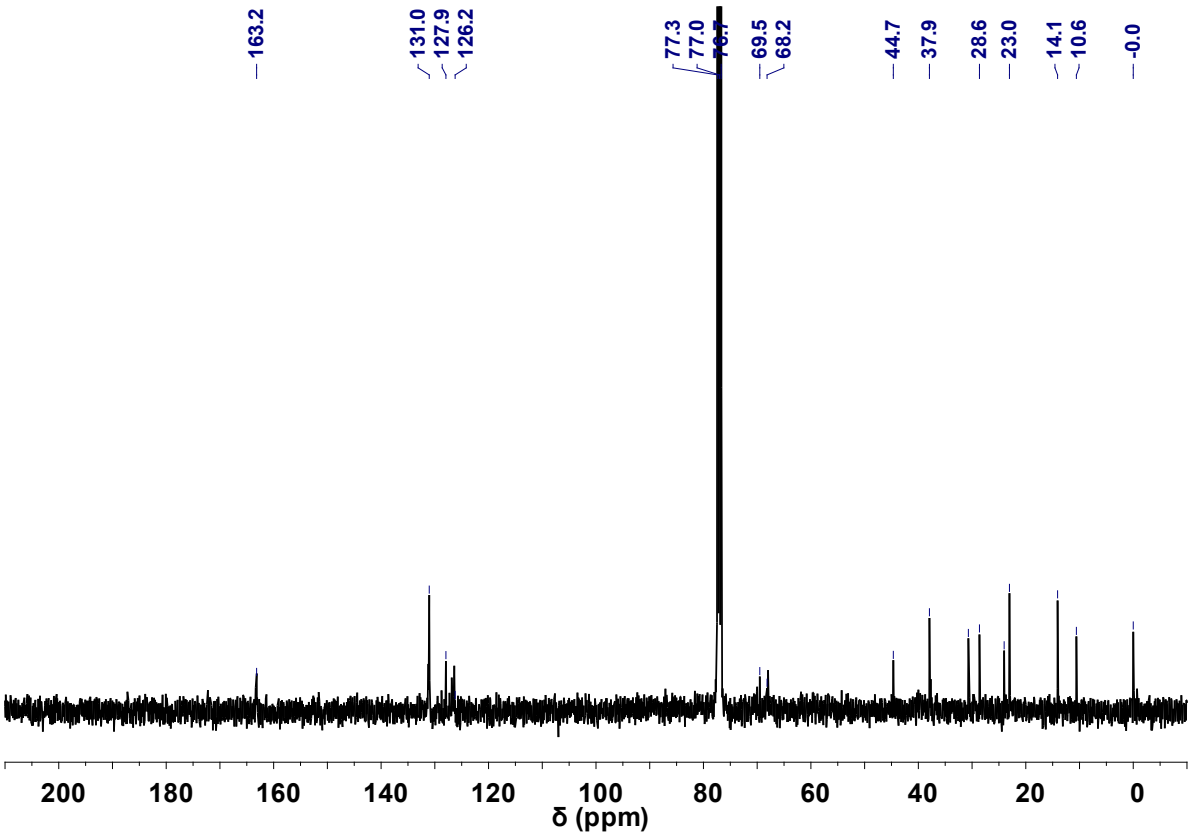
S8: ^{13}C NMR spectra of Boc-protected diimide **7**.



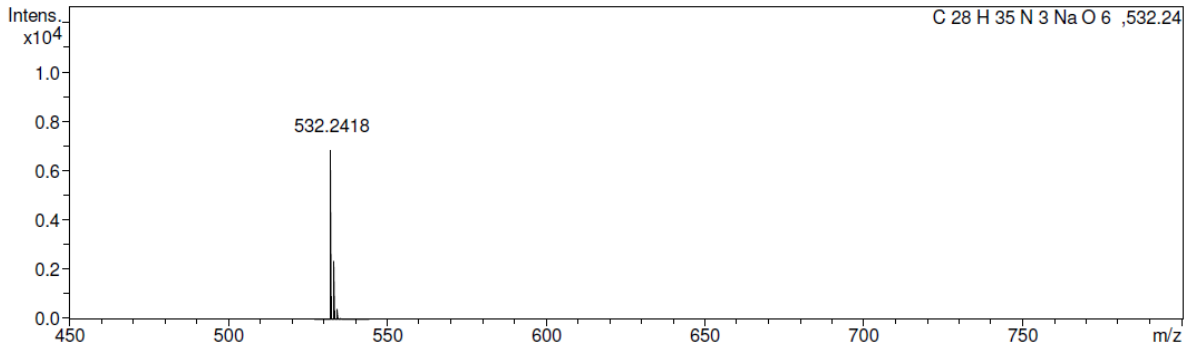
S9: Mass spectra of Boc-protected diimide **7**.



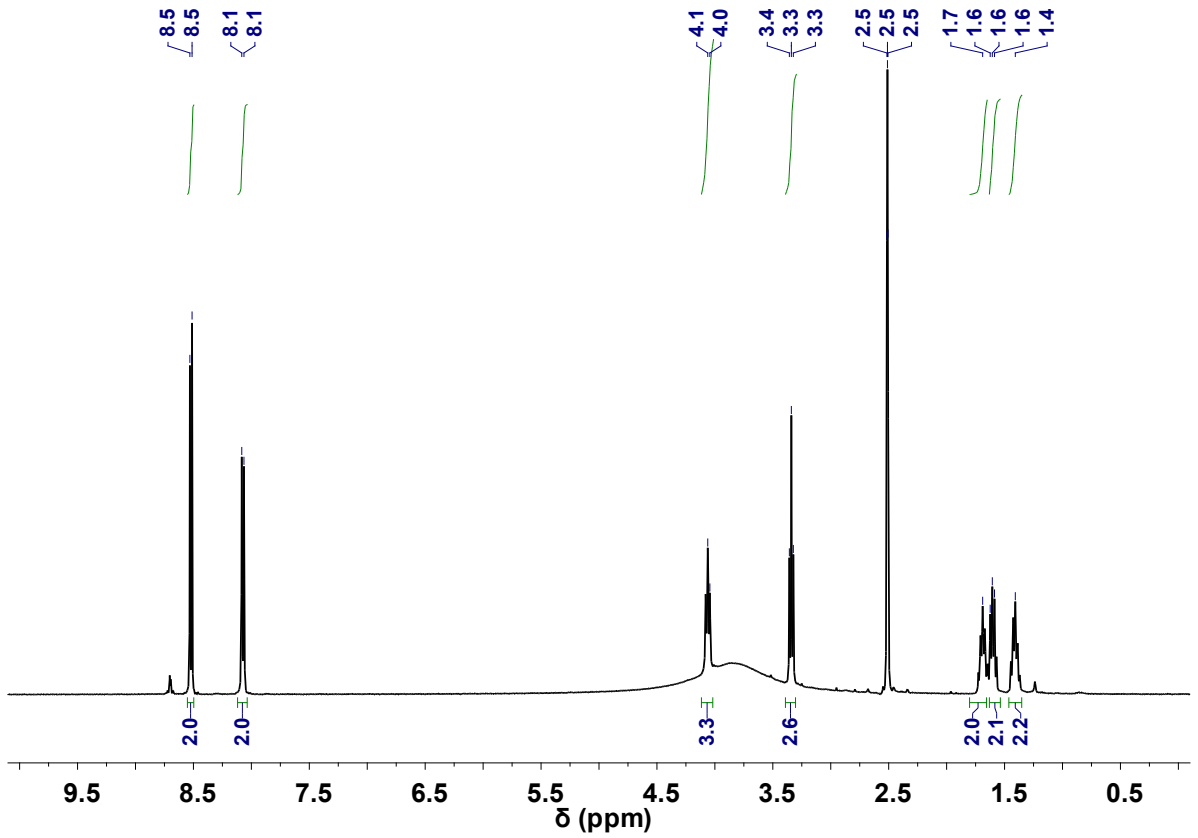
S10: ^{1}H NMR spectra of the amino-terminated diimide **1**.



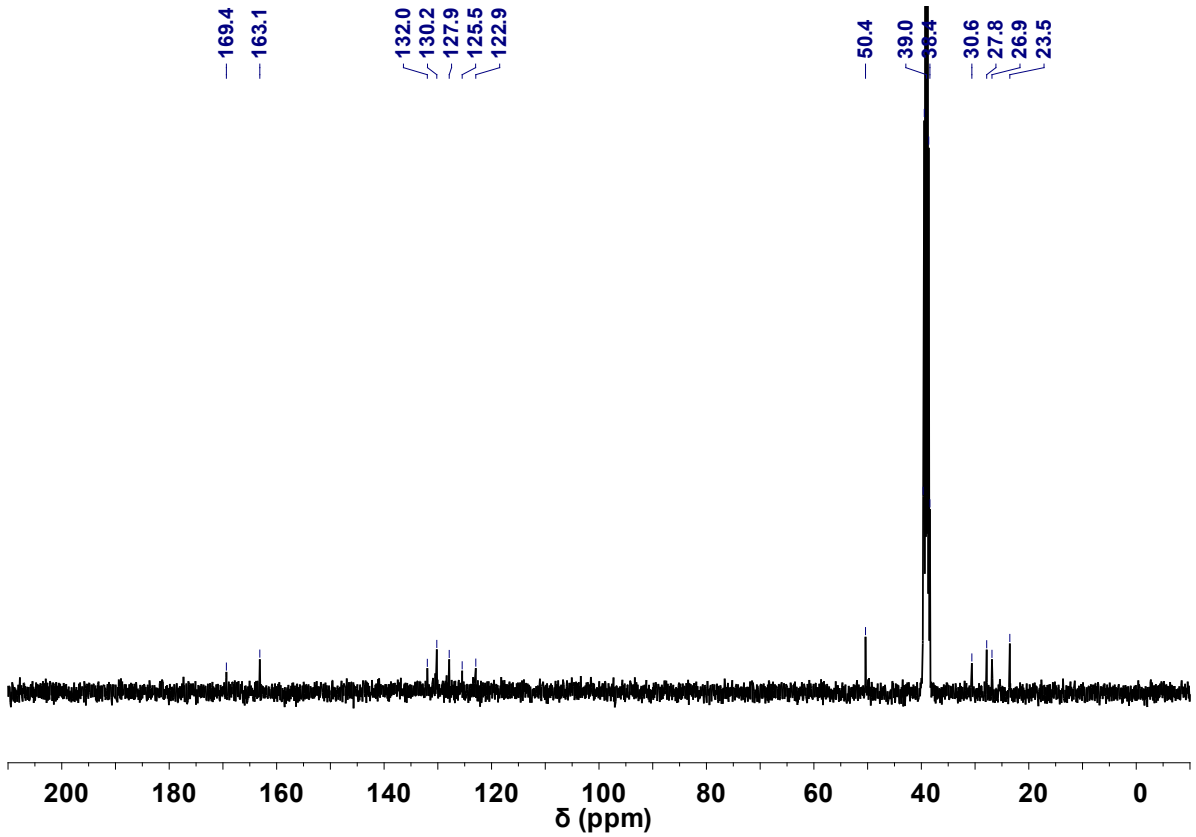
S11: ^{13}C NMR spectra of the amino-terminated diimide **1**.



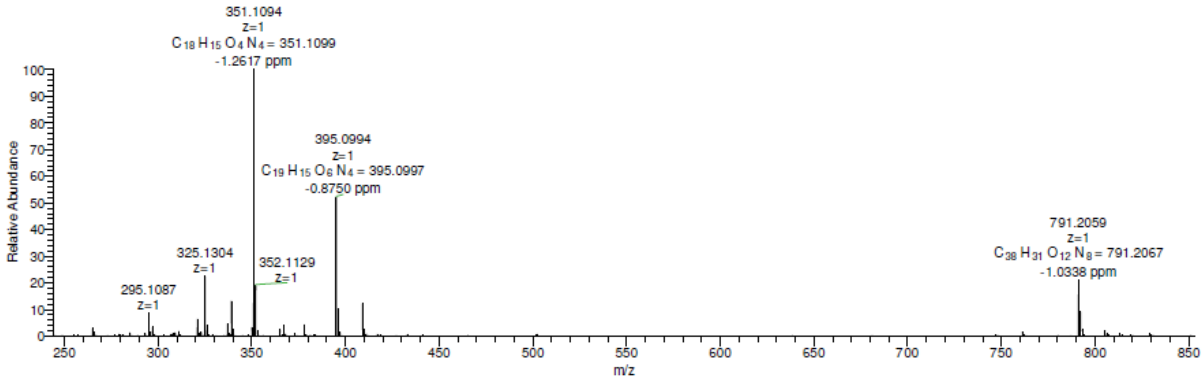
S12: Mass spectra of the amino-terminated diimide **1**.



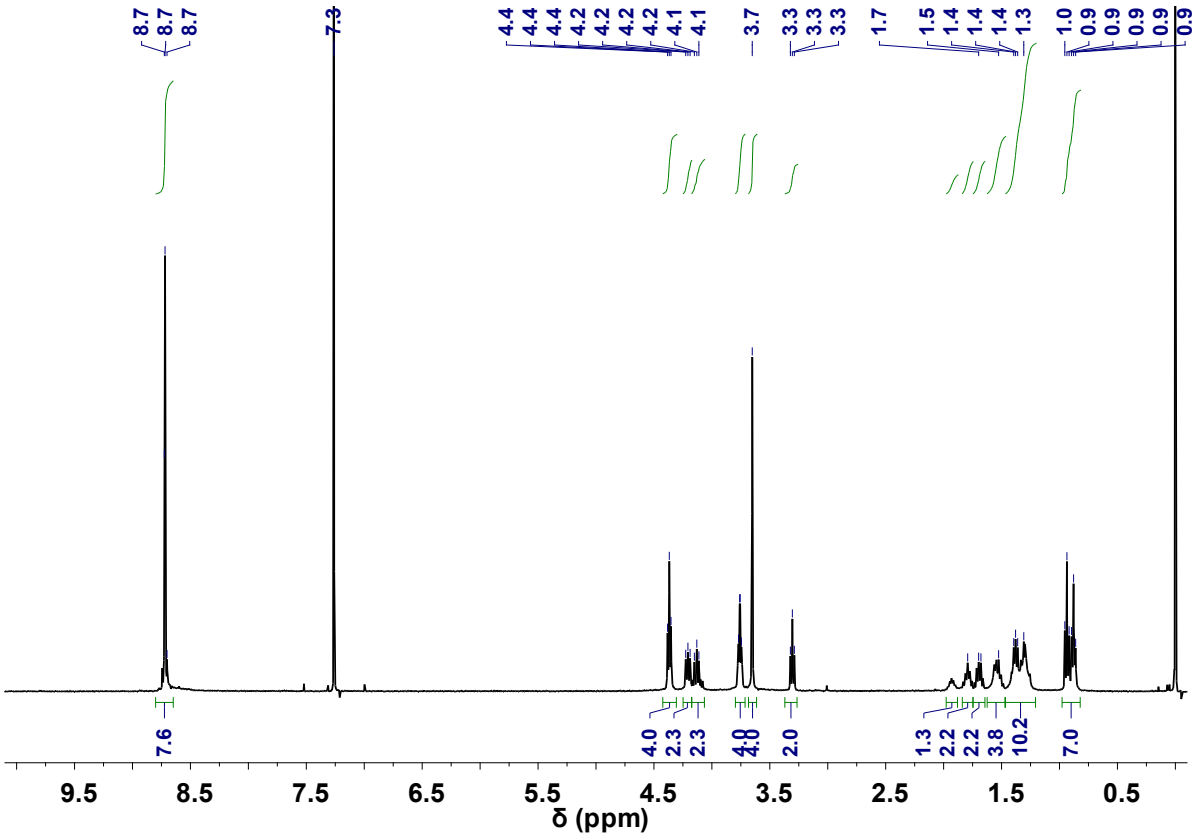
S13: ^{1}H NMR spectra of azide-terminated imide-diacid **9**.



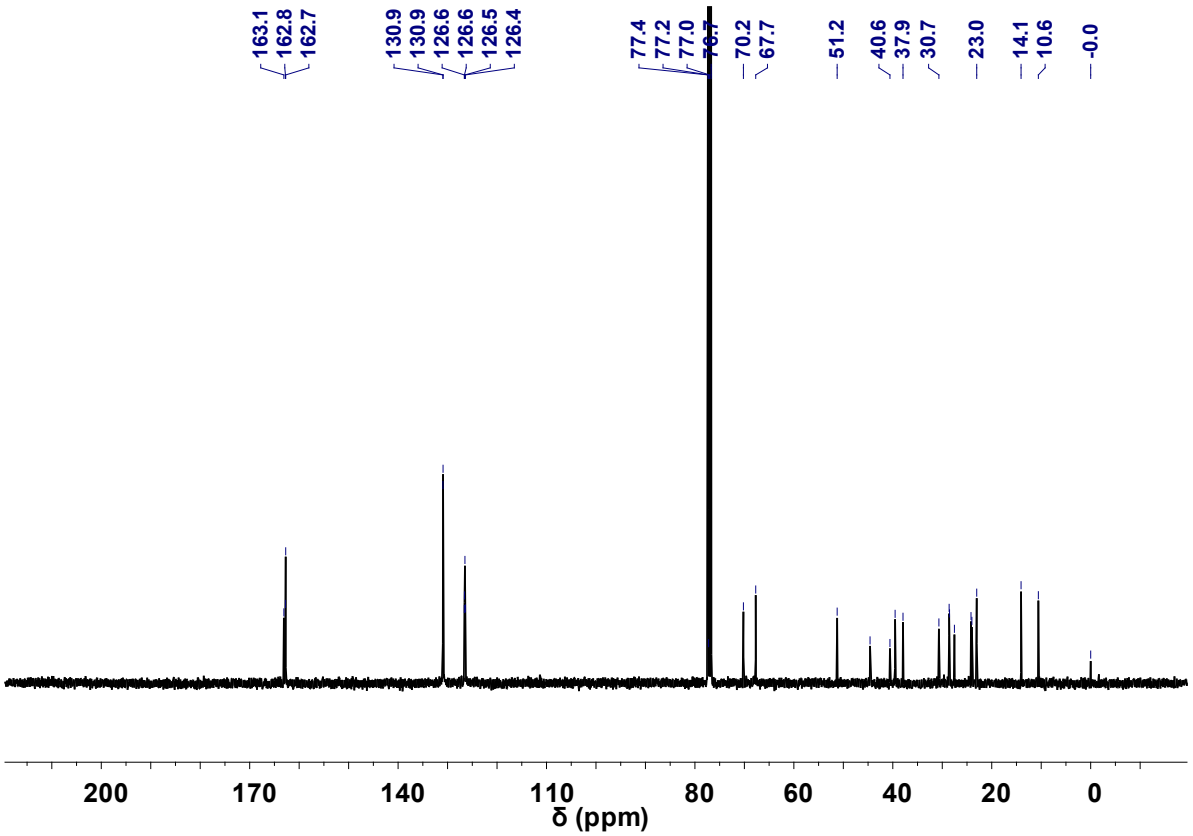
S14: ^{13}C NMR spectra of azide-terminated imide-diacid **9**.



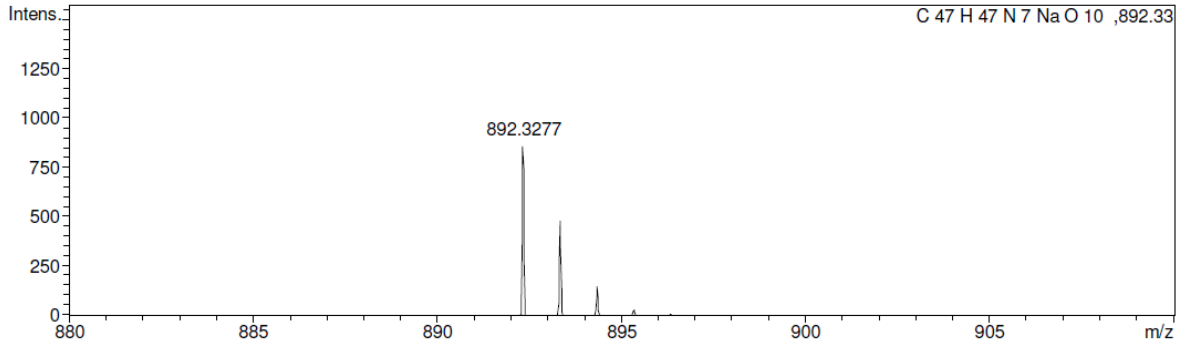
S15: Mass spectra of azide-terminated imide-diacid **9** in negative mode, showing the desired species and the associated dimer.



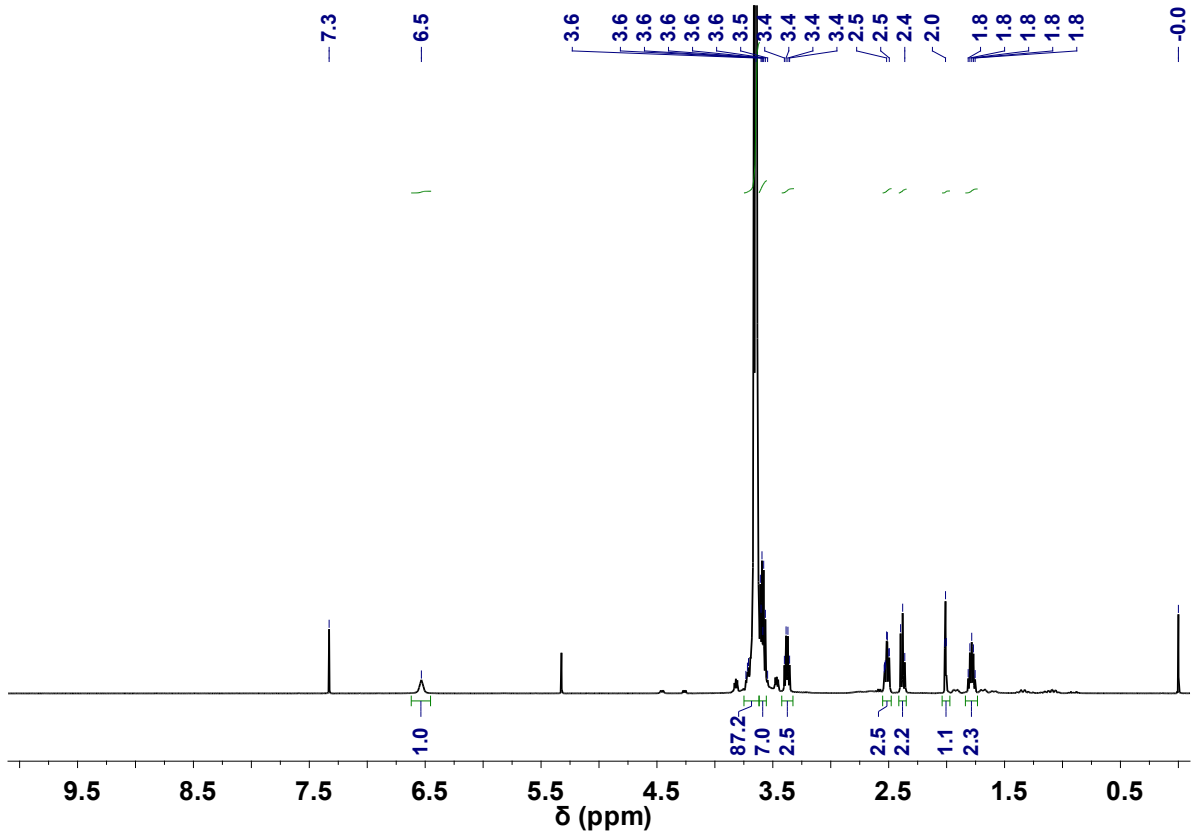
S16: ^{1}H NMR spectra of the azide-terminated chain-folding diimide **10**.



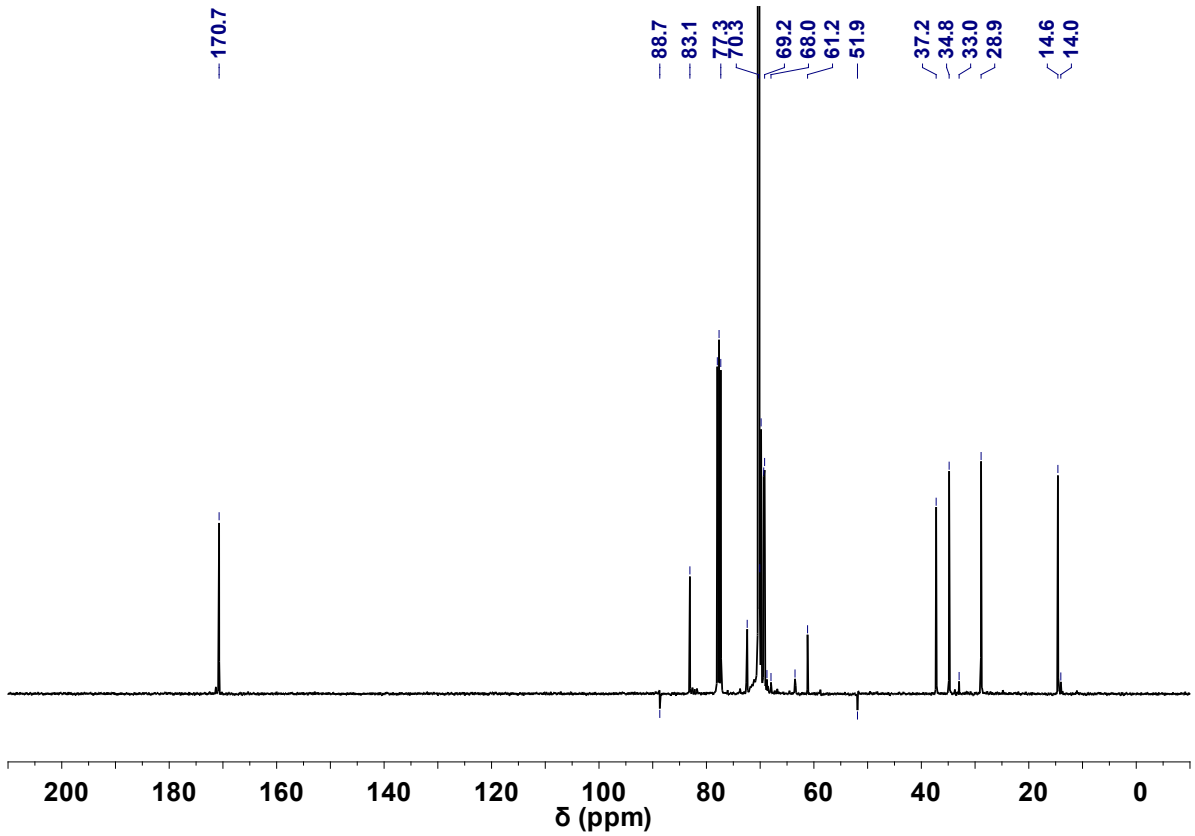
S17: ^{13}C NMR spectra of the azide-terminated chain-folding diimide **10**.



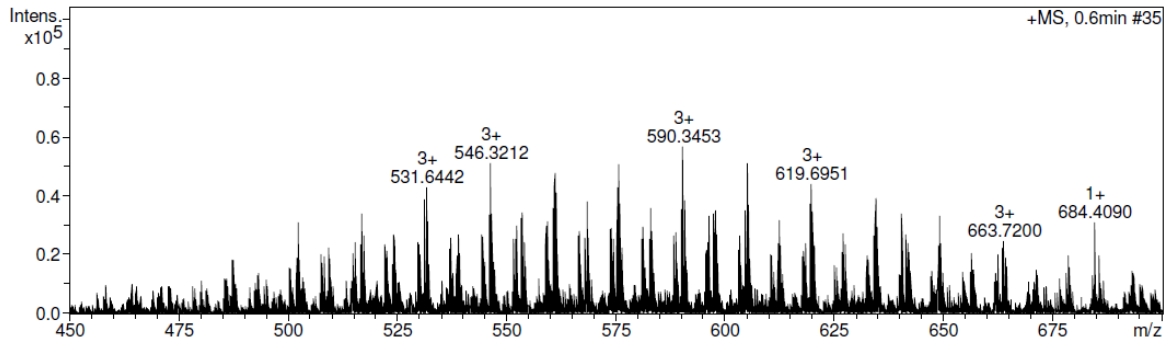
S18: Mass spectra of the azide-terminated chain-folding diimide **10**.



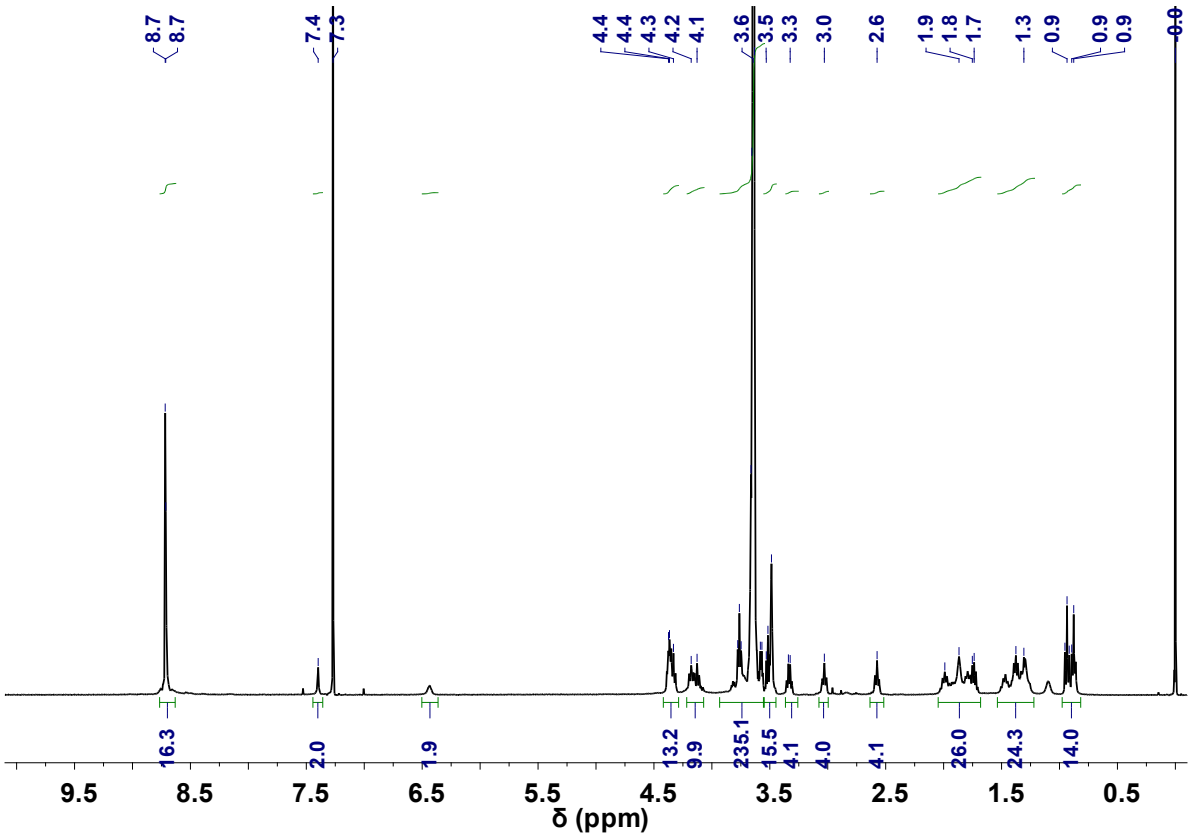
S19: ^{1}H NMR spectra of bis-alkyne-terminated poly(ethylene glycol) **13**.



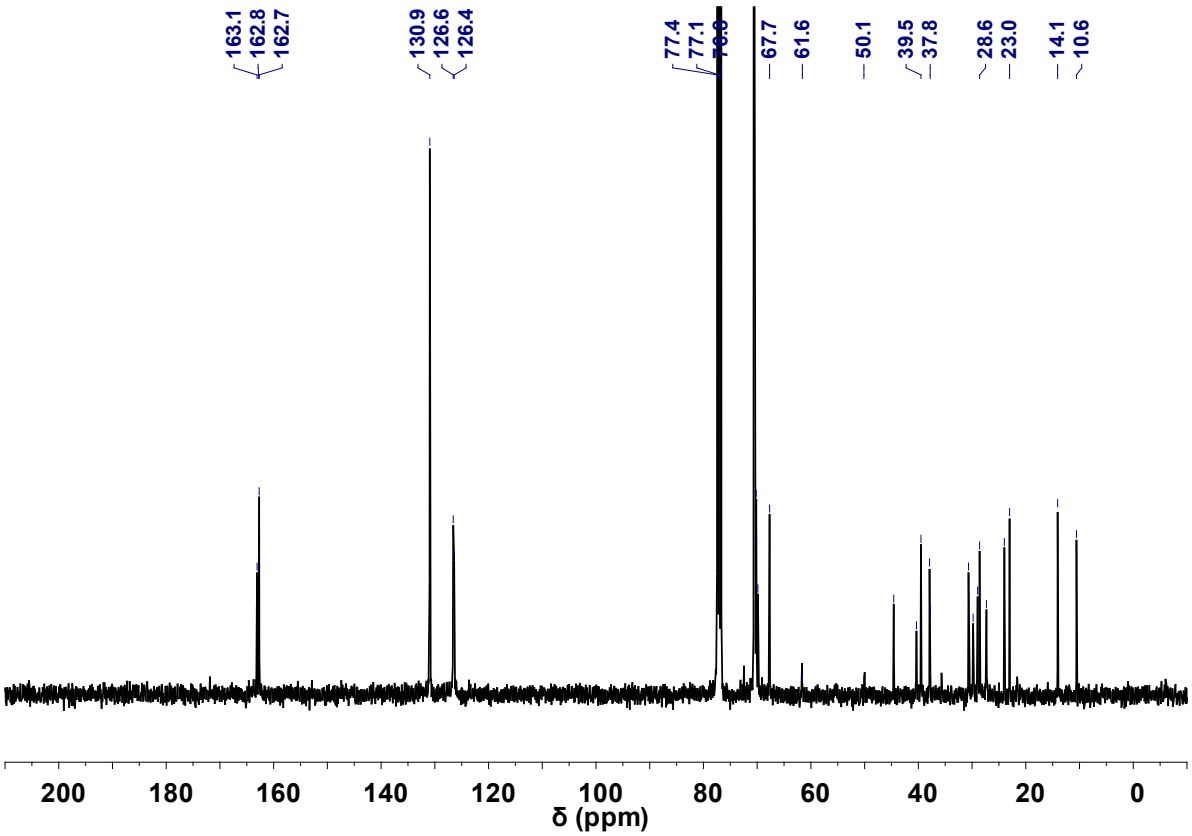
S20: ^{13}C NMR spectra of bis-alkyne-terminated poly(ethylene glycol) **13**.



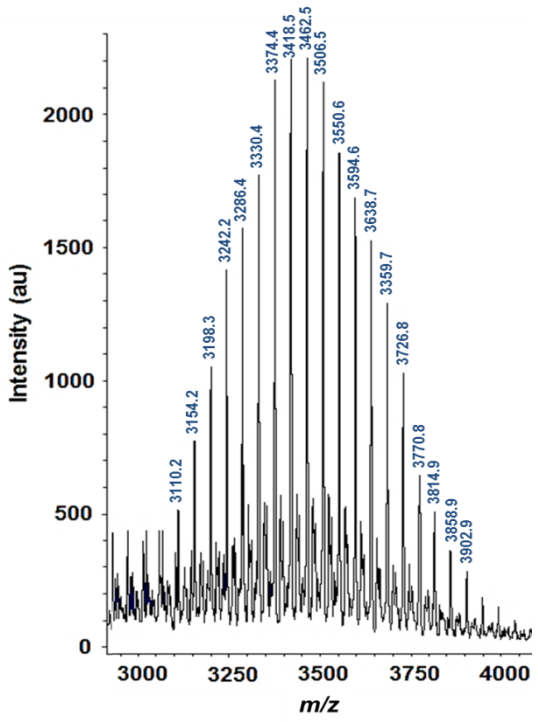
S21: Mass spectra of bis-alkyne-terminated poly(ethylene glycol) **13**.



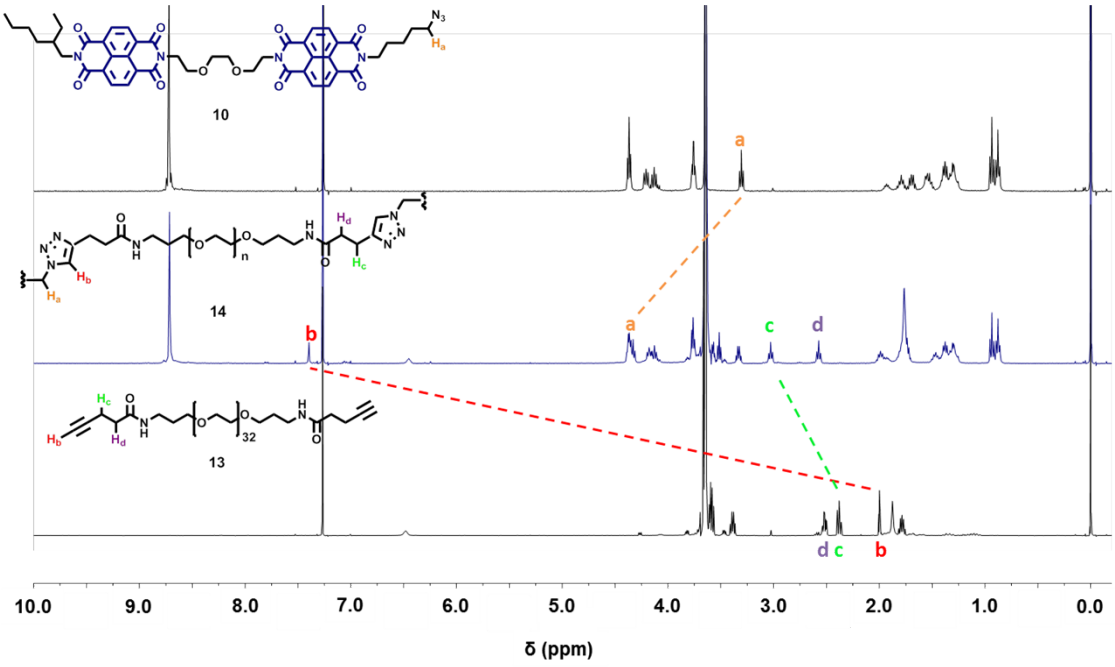
S22: [1]H NMR spectra of the 'clicked' chain-folding polydiimide **14**.



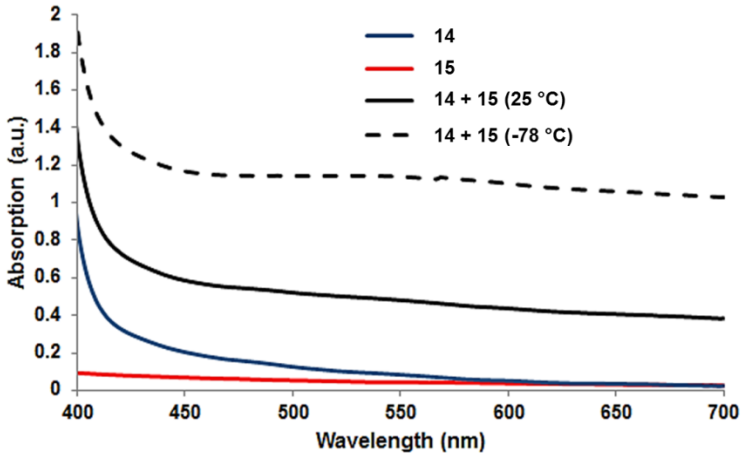
S23: [13]C NMR spectra of the 'clicked' chain-folding polydiimide **14**.



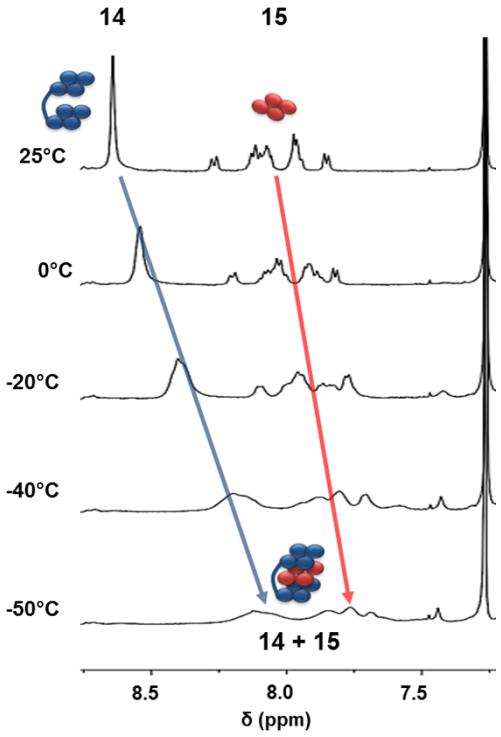
S24: MALDI-TOF mass spectrometric analysis of the 'clicked' chain-folding polydiimide **14**. The spacing between signals (44 Da) corresponds to a single repeat unit of poly(ethylene glycol).



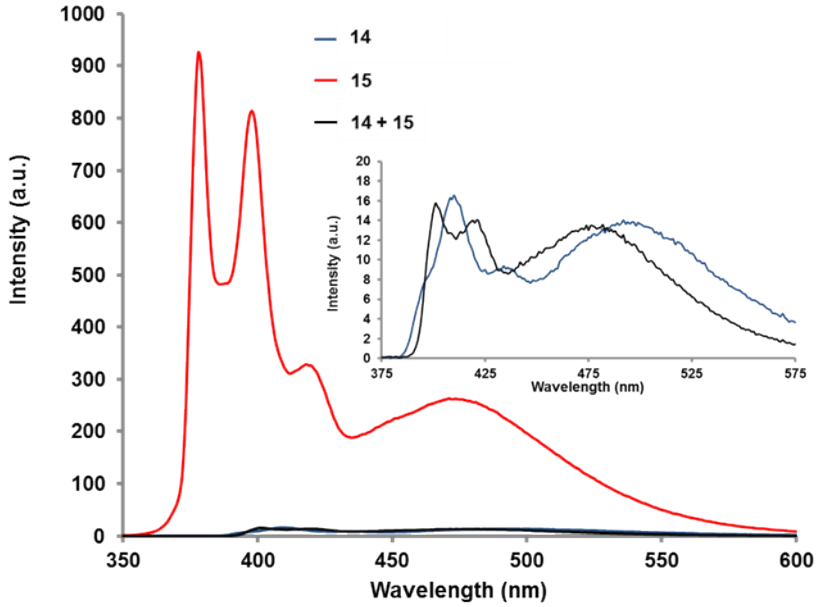
S25: ^{1}H NMR spectra of precursors **10** and **13** showing triazole formation through the appearance of the singlet at 7.45 ppm in the polyimide **14**.



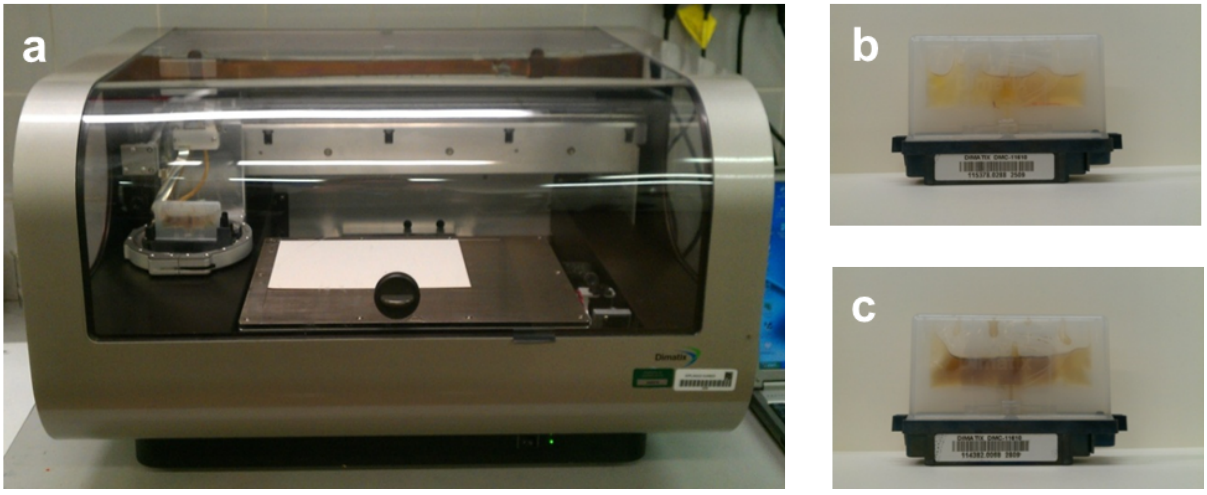
S26: UV-Vis spectra of the chain-folding polyimide **14** and pyrenyl terminated polymer **15** and on blending (**14** + **15**) at room temperature and -78 °C at a concentration of 3×10^{-3} M with respect to binding motifs in $CHCl_3$/TFA (9:1 v/v).



S27: Partial ^{1}H NMR spectra of the blend between the discrete chain-folding polymer **14** and the divalent pyrenyl polymer **15** showing significant complexation only at low temperature.



S28: Fluorescence spectra of emission inactive polyimide **14** and pyrenyl terminated poly(ethylene glycol) **15** and the equimolar (with respect to the binding motifs) blend (**14**+**15**). Insert shows expanded region between 375 nm and 575 nm, revealing the quenching of pyrenyl emissions in the blend (**14**+**15**) at room temperature.



S29: **a**. Fujifilm Dimatix™ Materials Printer (DMP-2800), **b**. Dimatix™ materials cartridge containing π-electron-rich polymer and **c**. π-electron deficient polydiimide containing cartridge