Supporting Information

RAFT-prepared α-Difunctional Poly(2-vinyl-4,4-dimethylazlactone)s Scaffolds and their Derivatives: Synthesis and Effect of End Groups on Aqueous Inverse Temperature Solubility

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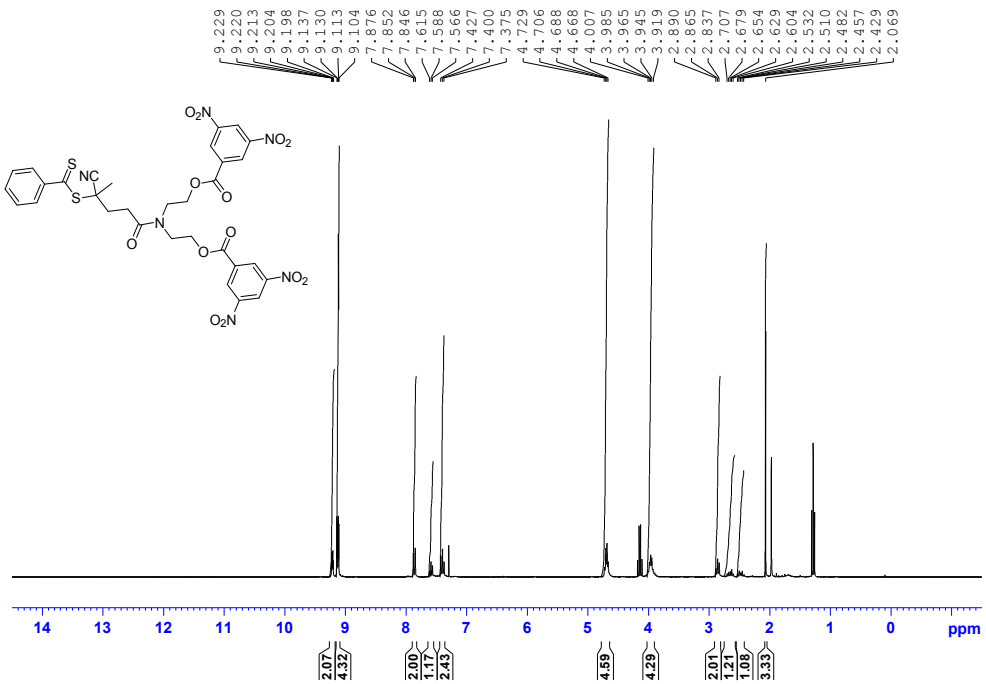
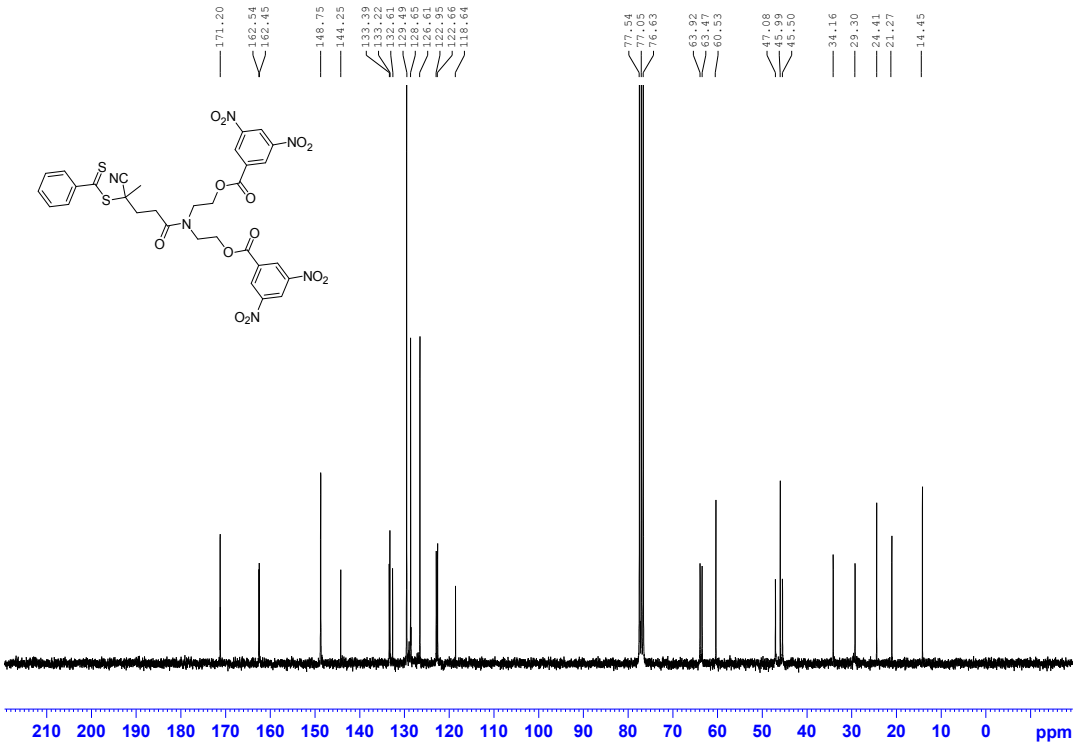
Table of Contents

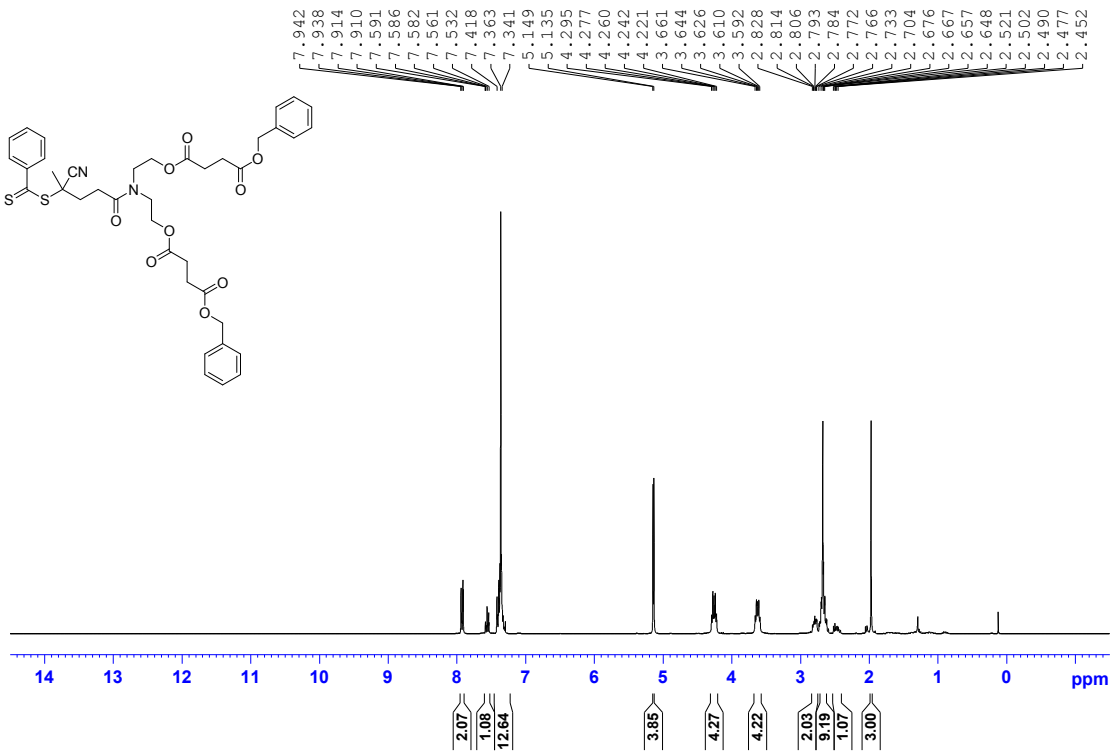
^{1}H and ^{13}C-NMR results of branched RAFT agents



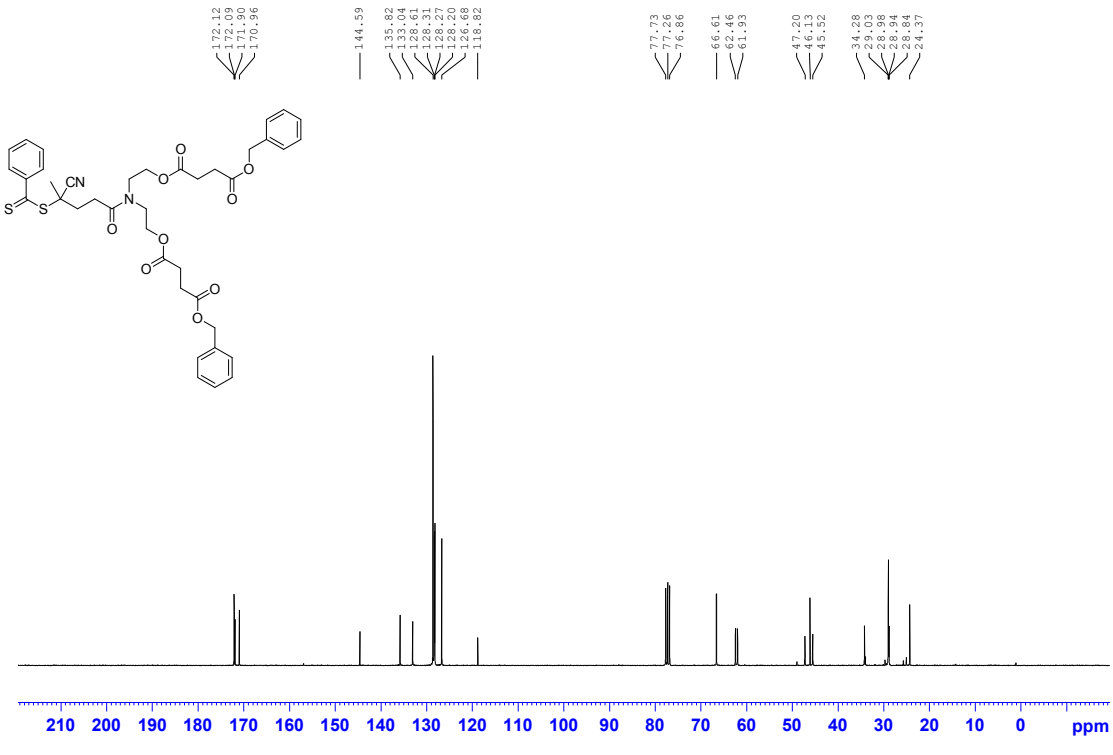
^{1}H-NMR of ((4-cyano-4-((phenylcarbono thioyl)thio)pentanoyl)azanediyl)bis(ethane-2,1-diyl) bis(3,5-dinitrobenzoate) (**CTA1**)



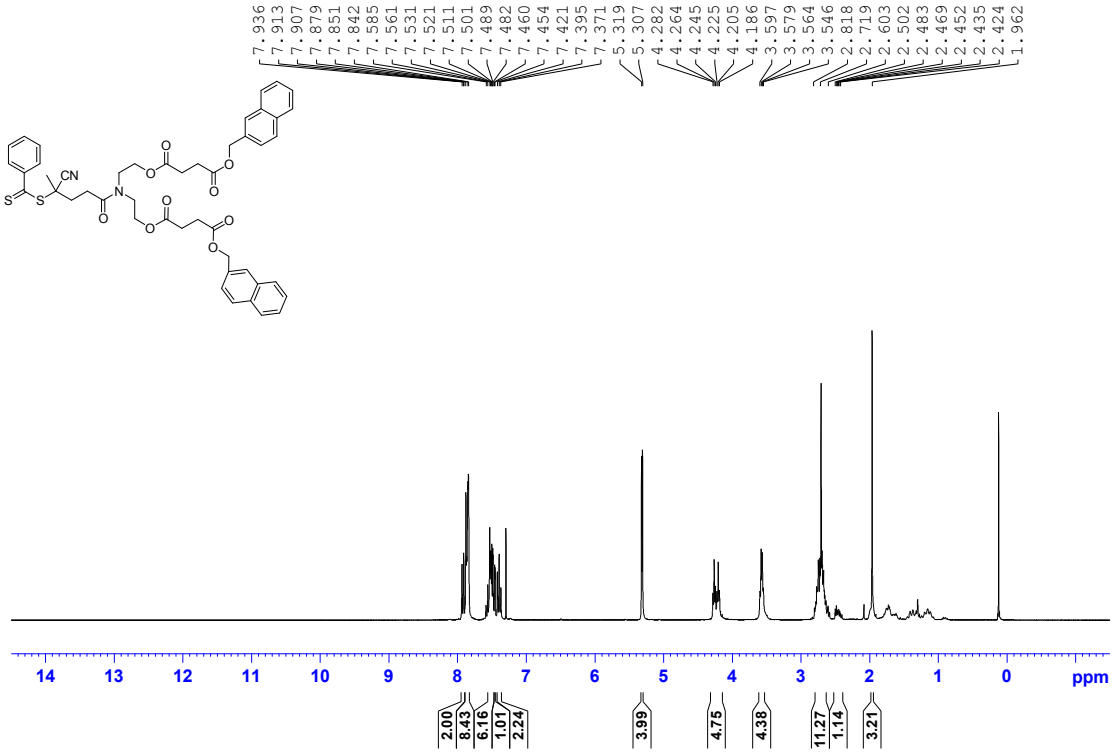
^{13}C-NMR of **CTA1**



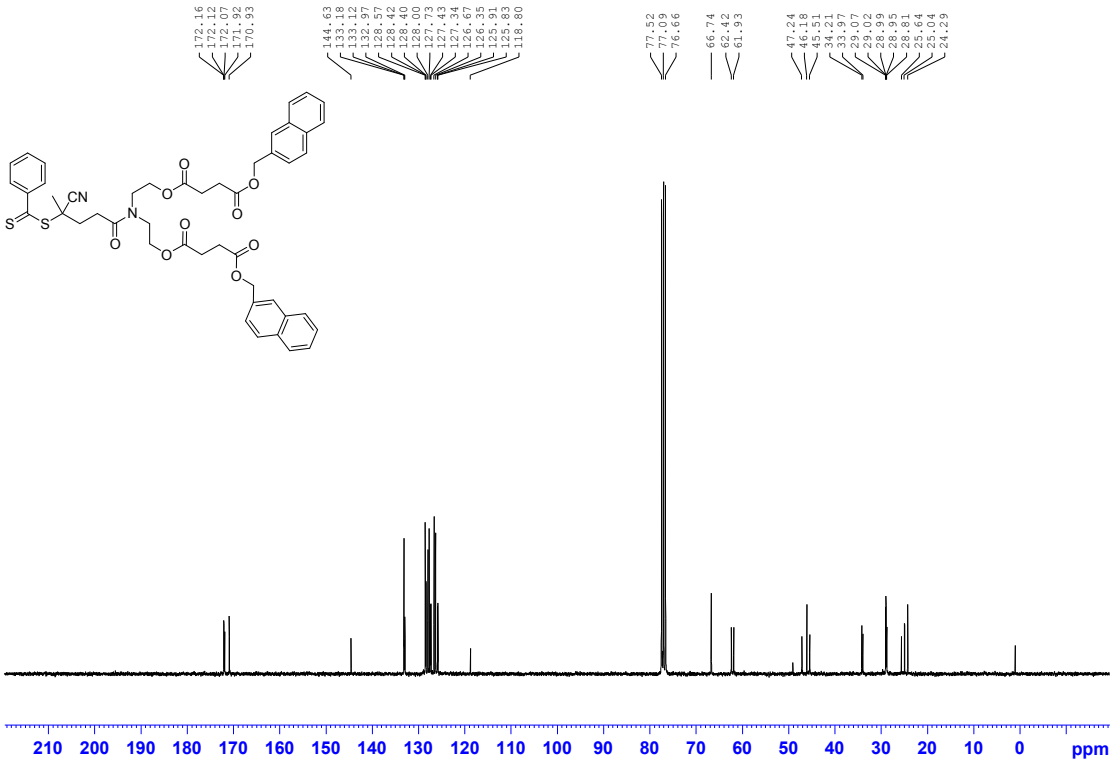
^{1}H-NMR of dibenzyl O,O'-(((4-cyano-4-((phen ylcarbonothioyl) thio)pentanoyl)azanediyl) bis(ethane-2,1-diyl)) disuccinate (**CTA2**)



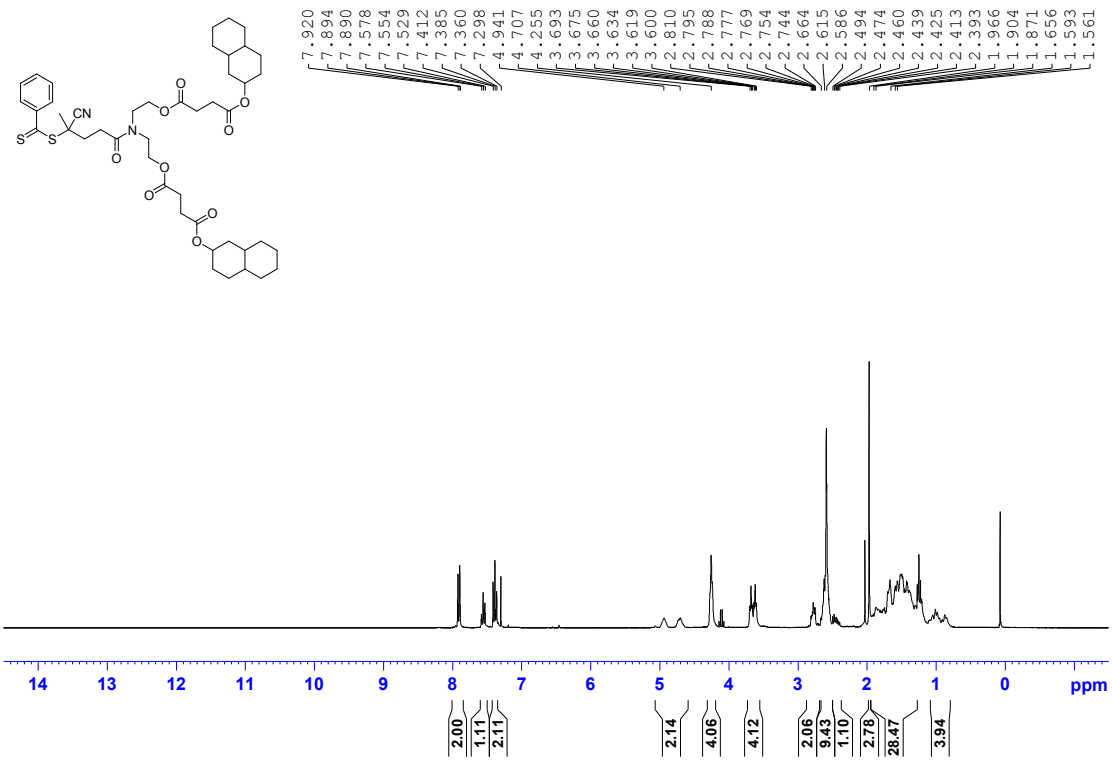
^{13}C-NMR of **CTA2**



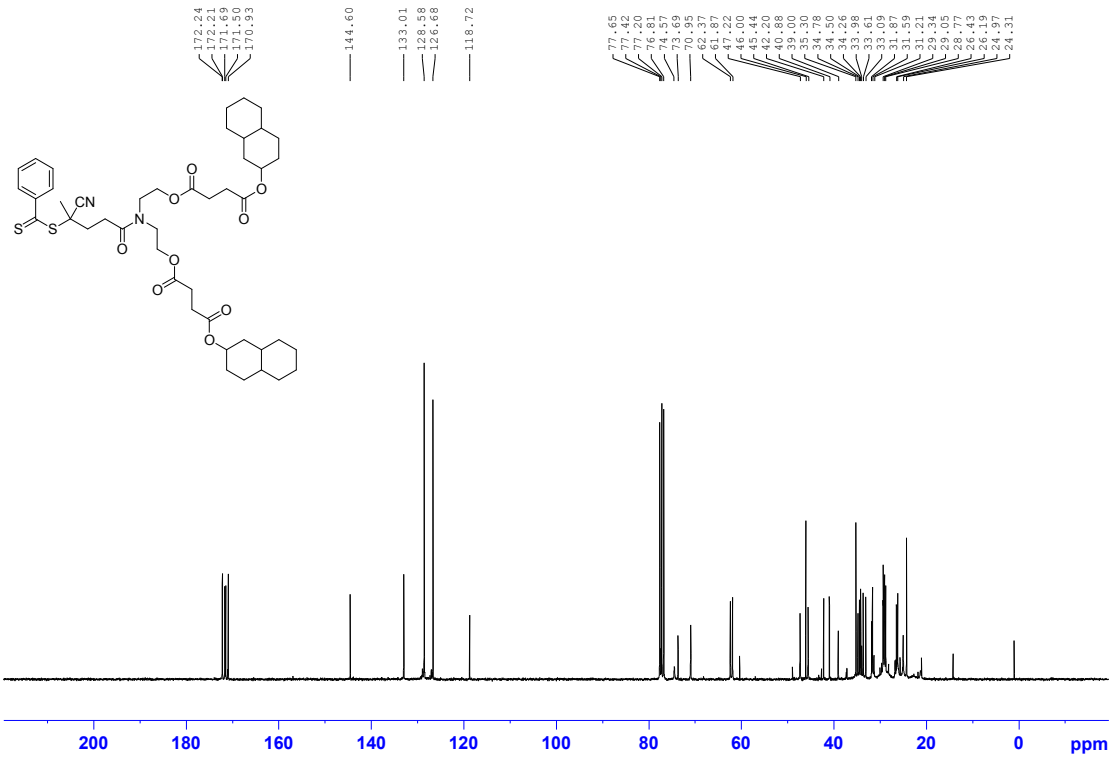
^{1}H-NMR of O,O'-(((4-cyano-4-((phenyl carbonothioyl)thio) pentanoyl)azanediyl)bis(ethane-2,1-diyl))bis(naphthalen-2-ylmethyl) disuccinate (**CTA3**)



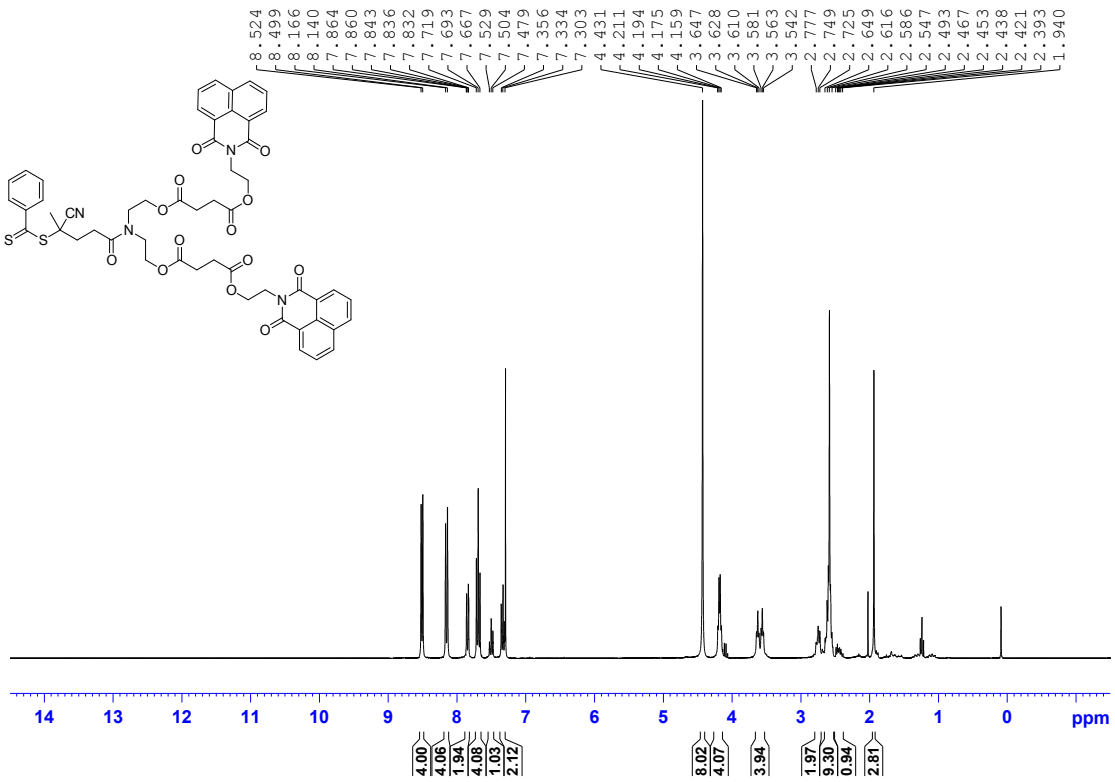
^{13}C-NMR of **CTA3**



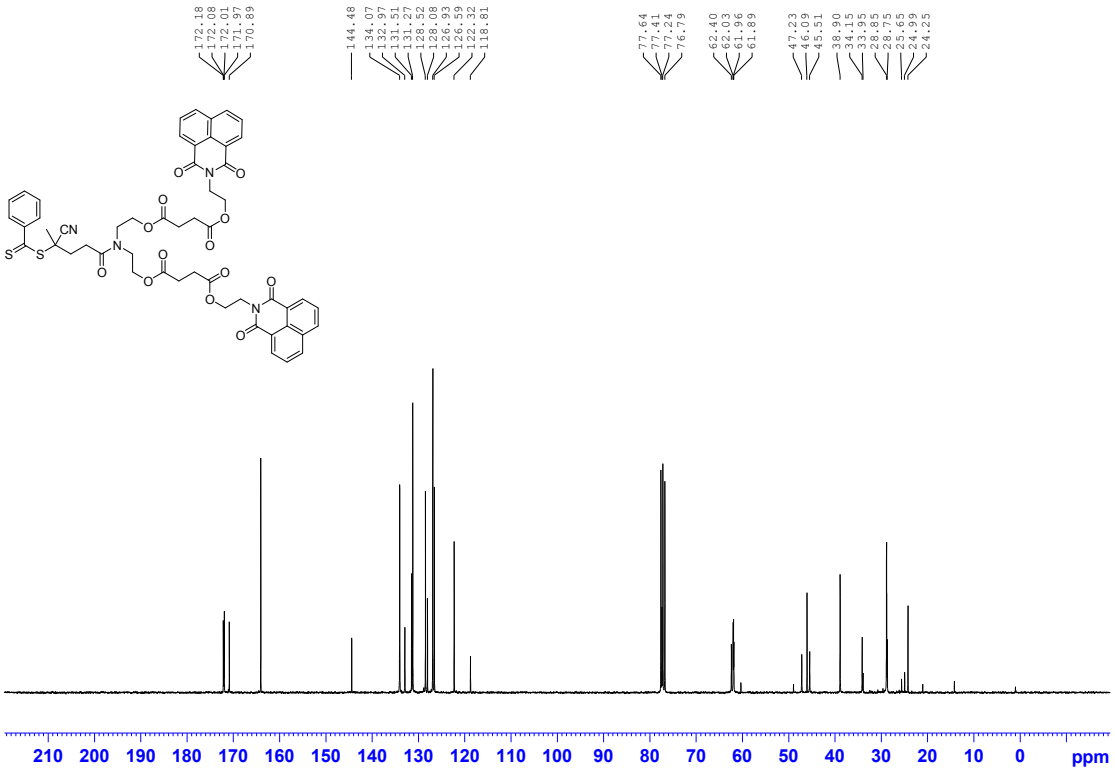
^{1}H-NMR of O,O'-(((4-cyano-4-((phenyl carbonothioyl)thio) pentanoyl)azanediyl)bis(ethane-2,1-diyl)) bis(decahydro naphthalen-2-yl) disuccinate (**CTA4**)



^{13}C-NMR of **CTA4**

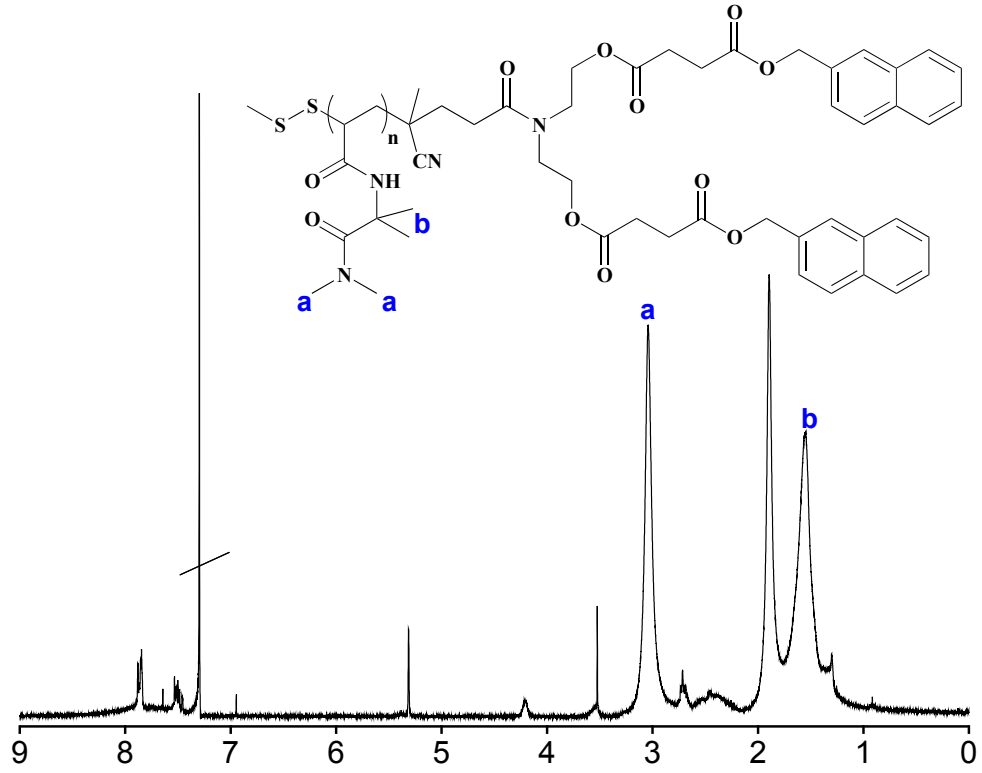


^{1}H-NMR of O,O'-(((4-cyano-4-((phenyl carbonothioyl)thio) pentanoyl)azanediyl)bis(ethane-2,1-diyl)) bis(2-(1,3-dioxo-1H-benzo[de]isoquinolin-2(3H)-yl)ethyl) disuccinate (**CTA5**)

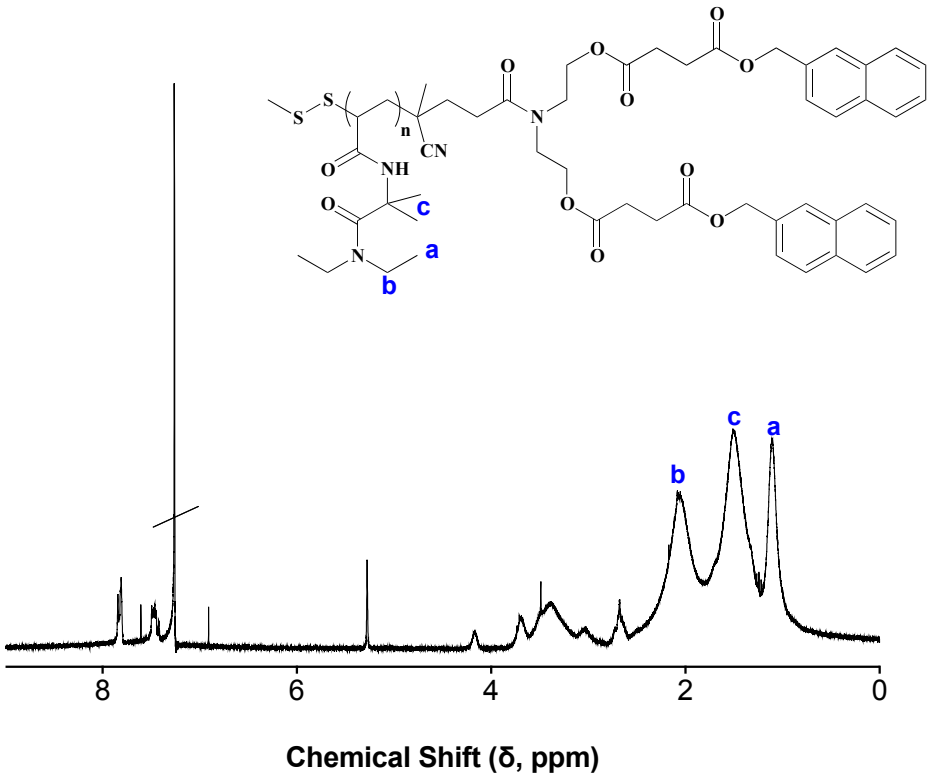


^{13}C-NMR of **CTA5**

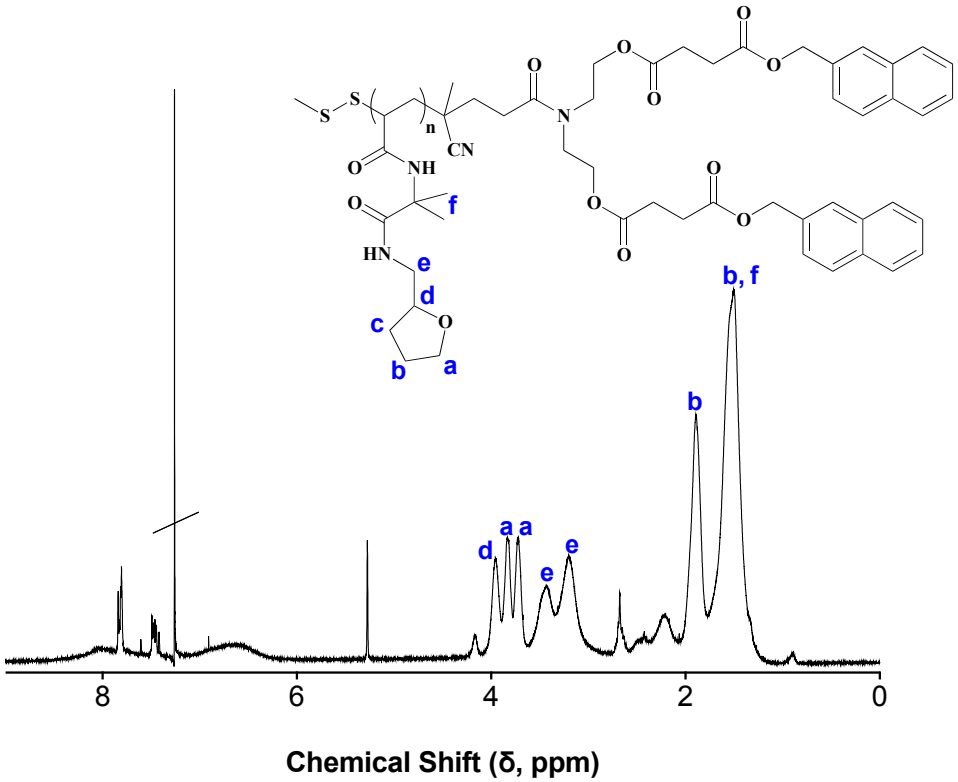
^{1}H-NMR of post-modified bis-α-naphthalenemethyl end-functional species



^{1}H-NMR bis-α-naphthalenemethyl dimethylamine polymer

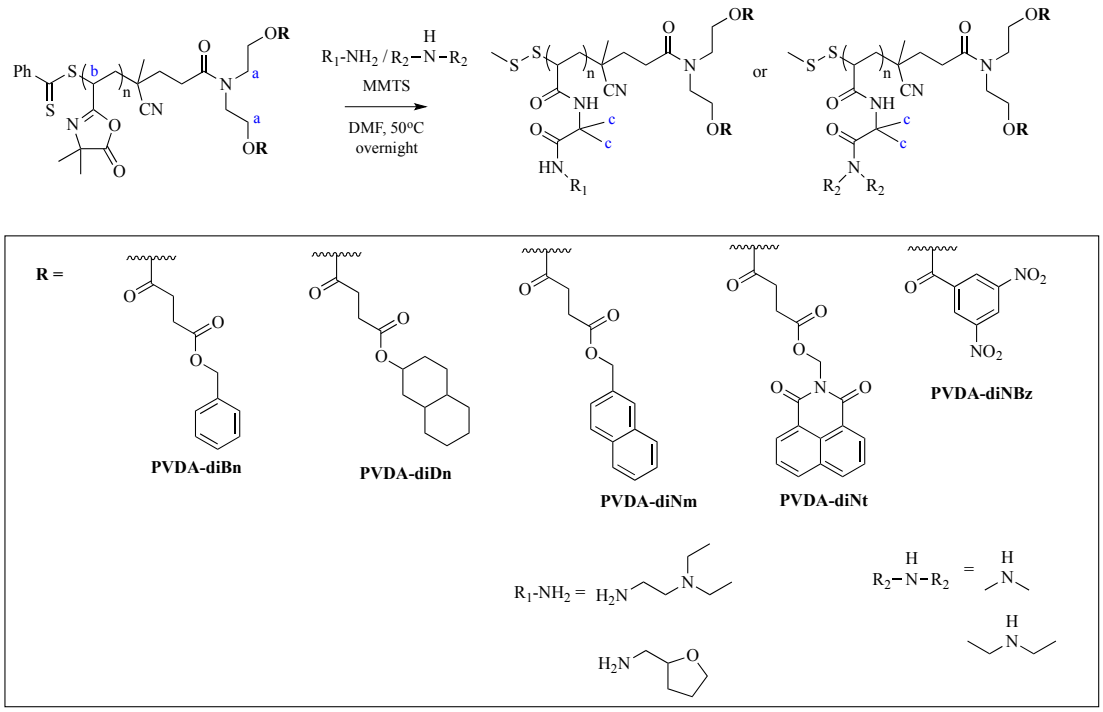


^{1}H-NMR bis-α-naphthalenemethyl diethylamine polymer



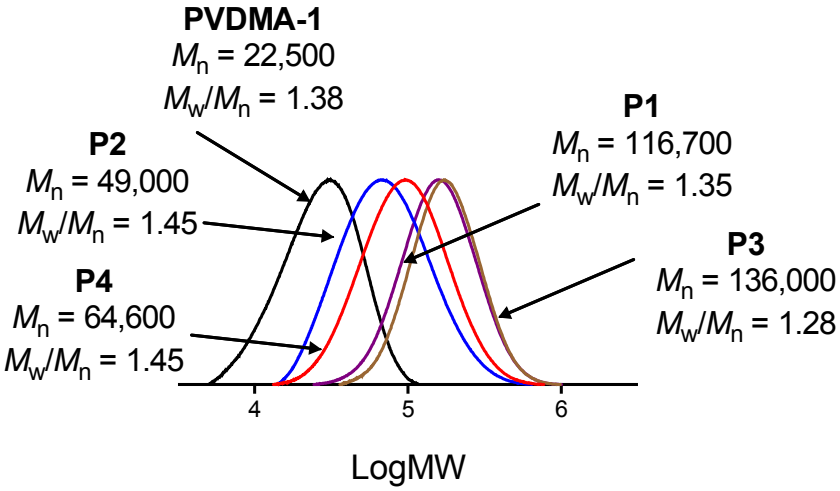
^{1}H-NMR bis-α-naphthalenemethyl tetrahydrofurfylamine polymer

Determination of absolute molecular weight by ^{1}H-NMR results

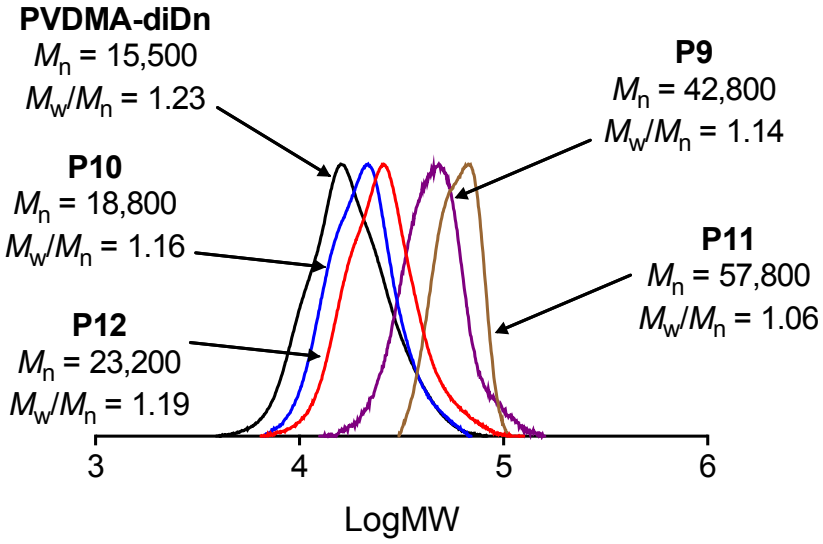


General chemical structure of VDMA homopolymer with protons used for absolute molecular weight determination labelled where (a) is the protons present in the alkyl chains of the RAFT agent (~4.2ppm) and (b) is the proton present in the polymer backbone (~2.8ppm). In the case of the post-modified derivatives, the integration signals for the labelled protons (c) present in the 2-methylalanyl spacer (~1.5ppm) were compared with signals assigned to various introduced side groups suggest the successful and quantitative conversion of VDMA homopolymers to the respective post-modified bisamide derivatives.

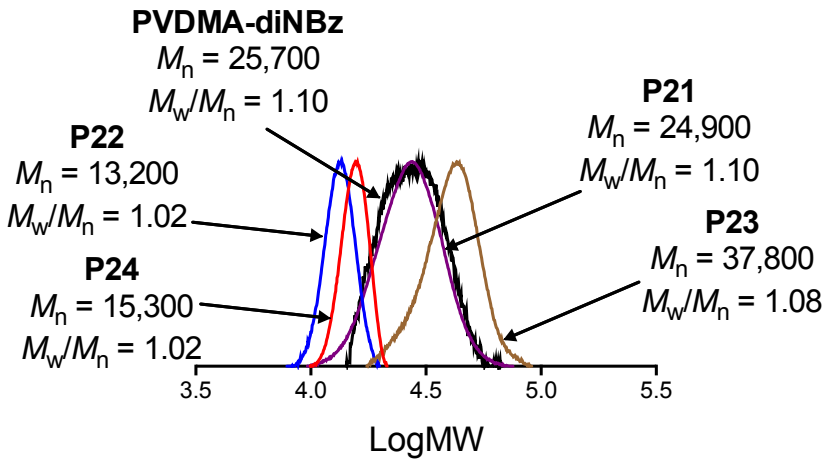
SEC results for various VDMA polymer and its post-modified derivatives



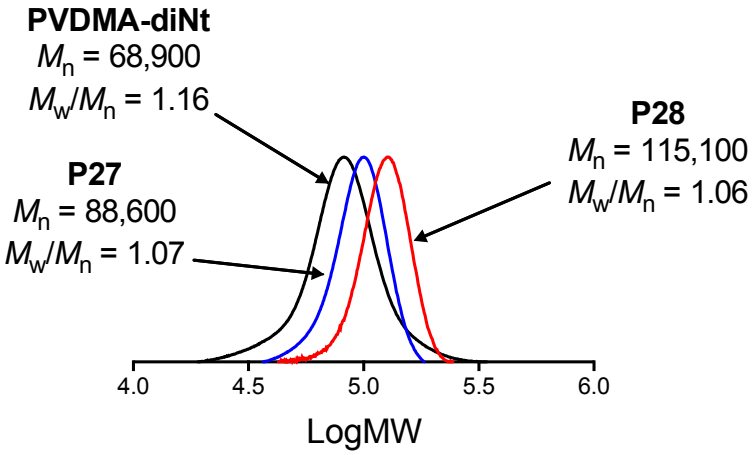
Molecular weight distribution curves for PVDMA-1 (black line), P1 DMA-modified homopolymer(purple line), P2 DEEDA-modified homopolymer (blue line), P3 DEA-modified homopolymer (green line) and P4 THFA-modified homopolymer (red line). SEC determined number average molecular weights ($\overline{M}_n$)



Molecular weight distribution curves for PVDMA-diDn (black line), P9 DMA-modified homopolymer(purple line), P10 DEEDA-modified homopolymer (blue line), P11 DEA-modified homopolymer (green line) and P12 THFA-modified homopolymer (red line). SEC determined number average molecular weights ($\overline{M}_n$) and dispersities ($Đ_M = \overline{M}_w / \overline{M}_n$) are also given.



Molecular weight distribution curves for PVDMA-diNBz (black line), P21 DMA-modified homopolymer(purple line), P22 DEEDA-modified homopolymer (blue line), P23 DEA-modified homopolymer (green line) and P24 THFA-modified homopolymer (red line). SEC determined number average molecular weights ($\overline{M}_n$) and dispersities ($Đ_M = \overline{M}_w / \overline{M}_n$) are also given.



Molecular weight distribution curves for PVDMA-diNt (black line), P27 DEEDA-modified homopolymer (blue line) and P28 THFA-modified homopolymer (red line). SEC determined number average molecular weights ($\overline{M}_n$) and dispersities ($Đ_M = \overline{M}_w / \overline{M}_n$) are also given.