

Article

Effective End-Group Modification of Star-Shaped PNVCL from Xanthate to Trithiocarbonate Avoiding Chemical Crosslinking

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Table S1. Characteristics of PNVCL star polymers prepared in this work.

Entry	Sample ^a	[NVCL] ₀ : [CTA] ₀	Time (h)	Conv. ^b (%)	$M_{n\ theo}^c$ (g/mol)	$M_{n\ GPC}^d$ (g/mol)	\bar{D}^d	LCST ^e	(PNVCL-SH) ₆	
									$M_{n\ GPC}^d$ (g/mol)	\bar{D}^d
1	(PNVCL ₄₈) ₆	430	24	64	39,565	39,610	1.15	-	47,260	1.07
2	(PNVCL ₃₂) ₆	430	18	-	-	26,900	1.13	30	27,500	1.2
3	(PNVCL ₅₅) ₆	480	18	55	38,000	46,100	1.11	36	-	-
4	(PNVCL ₃₅) ₆	430	20	54	34,188	29,200	1.24	28	43,560	1.22
5	(PNVCL ₂₅) ₆	430	16	42	26,415	21,100	1.09	24	-	-

The polymerization reaction was carried out in *p*-dioxane at 30 °C in the presence of hexafunctional xanthate-type. ^aThe subscript numbers represent the repeating units of PNVCL estimated by using GPC. ^bDetermined gravimetrically. ^cCalculated using equation: $M_{n\ theo} = M_{CTA} + \text{conv.} (M_{NVCL}[NVCL]_0/[CTA]_0)$. ^dDetermined by GPC in THF at 35 °C with RI and LS detectors using polystyrene linear standards for calibration of LS detector. PNVCL $dn/dc = 0.109$ mL/g. ^eDetermined by DLS in aqueous water (1 mg/mL).

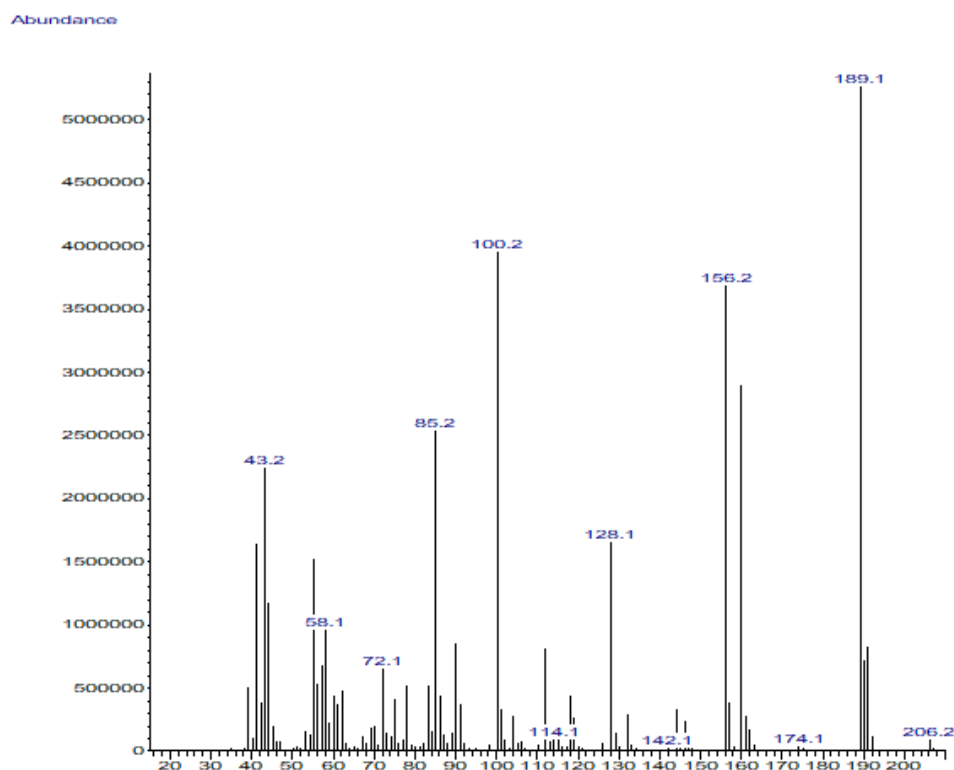


Figure S1. Mass spectrum for the *o*-ethyl hexylcarbamothioate.

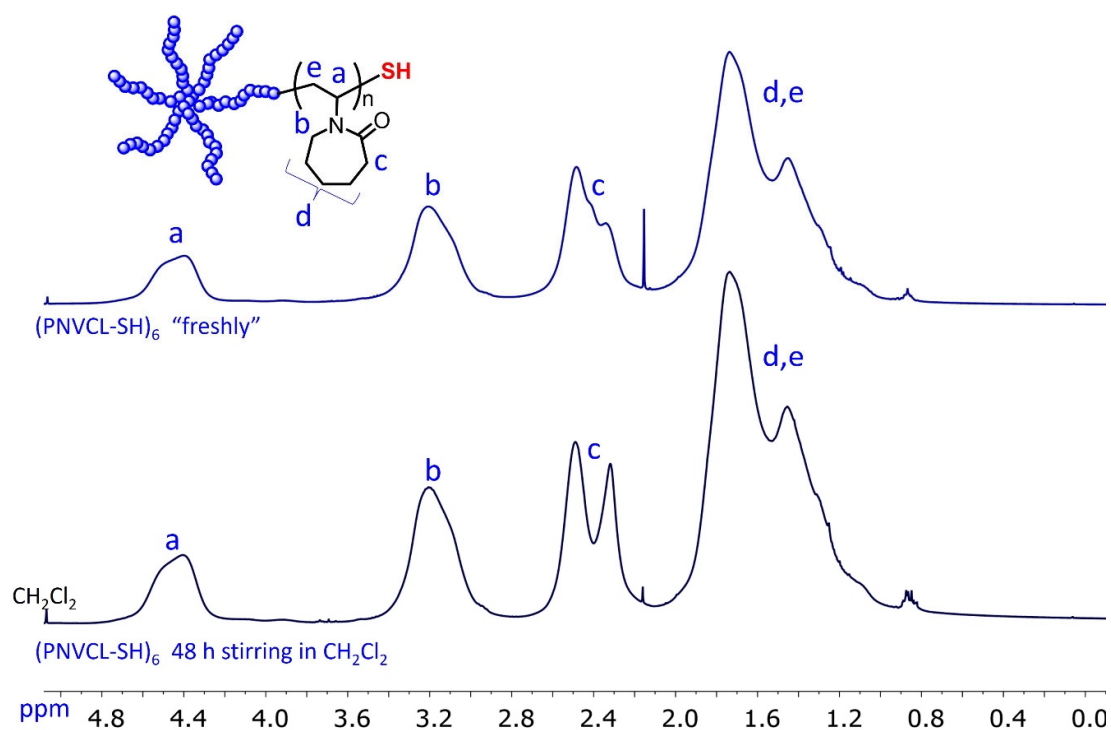
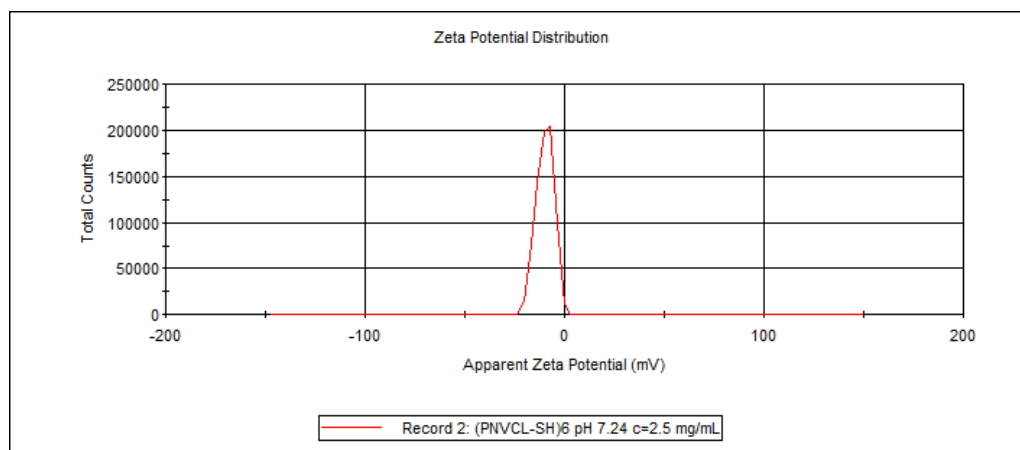
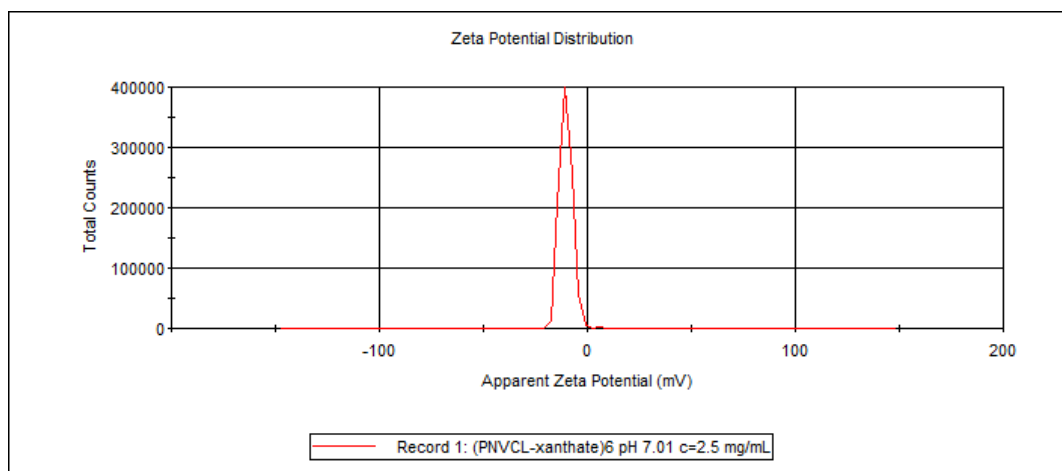


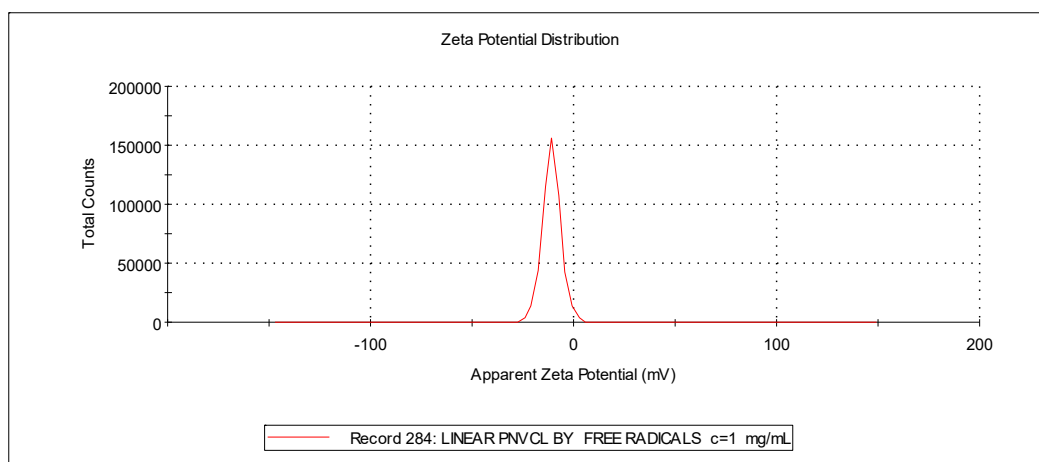
Figure S2. ^1H -NMR (400 MHz, CDCl_3) spectrum of freshly $(\text{PNVCL})_6$ -SH star polymers.



(a)



(b)



(c)

Figure S3. Zeta potential value using DLS for a) (PNVCL-SH)₆ star polymer and b) (PNVCL₃₅-xanthate)₆. The samples were dissolved in distilled water (2.5 mg/mL). The pH (unadjusted) of the solution was 7.01 and 7.24 respectively. c) Linear PNVCL polymer prepared by free radical polymerization.