

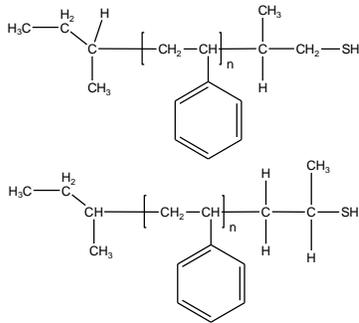
Sample Name: **Thiol Terminated Polystyrene**

**$^1\text{H}$  NMR spectrum (500 MHz,  $\text{CDCl}_3$ ) of the Sample:**

Sample # **P40721-SSH**

**Structure:**

**Route 2:** (possible architectures)



**Composition:**

$M_n \times 10^3$ (g/mol)	Mw/Mn	-SH functionality
233.0	1.11	>90%
Tg		105 °C

**Synthesis:**

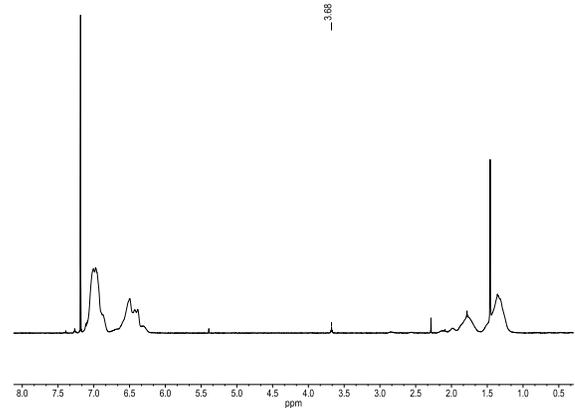
The polymer was synthesized by direct termination of anionic living polymerization of styrene by ethylene sulfide or propylene sulfide. Polymerization of styrene by sec-BuLi in THF at  $-78^\circ\text{C}$  and termination by purified ethylene sulfide or propylene sulfide.

**Characterization:**

The molecular weight and polydispersity index of the hydroxyl terminated polymer were determined before functionalization with thiol by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with UV-vis and refractive index detectors. Polymer functionality was verified by oxidation of thiol to disulfide.

**Functionality:**

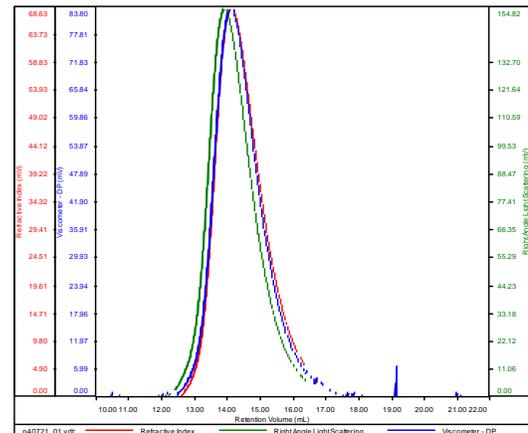
It was determined by oxidation reaction with iodine.



**SEC elugram of the Sample:**

P40721-SSH

Conc	2.8790
dn/dc	0.1650
Solvent	DMF w 0.023M LiBr
Flow Rate	0.7000
Method	PS80k_2017-July-05-0000.vcm



Sample	Mn	Mw	Mp	Mw/Mn	IV
p40721_01.vdt	232,964	259,012	253,038	1.112	0.5626

**DSC thermogram of the Polymer:**

