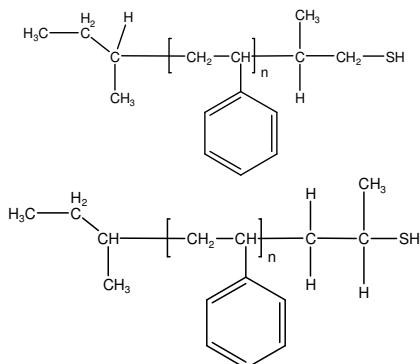


Sample Name: **Thiol Terminated Polystyrene**

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

Sample # **P18814-SSH**

**Route 2:** (possible architectures)



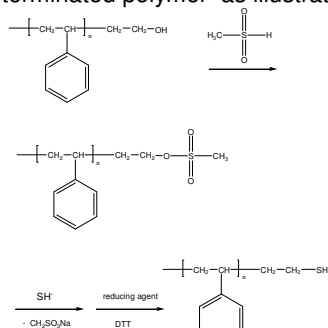
**Composition:**

$\text{Mn} \times 10^3$ (g/mol)	Mw/Mn	-SH functionality
3.0	1.13	>95%

**Synthesis:**

SH end-functionalized polystyrene can be synthesized quantitatively by 2 different approaches:

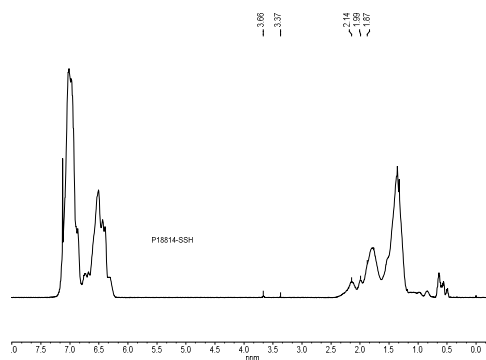
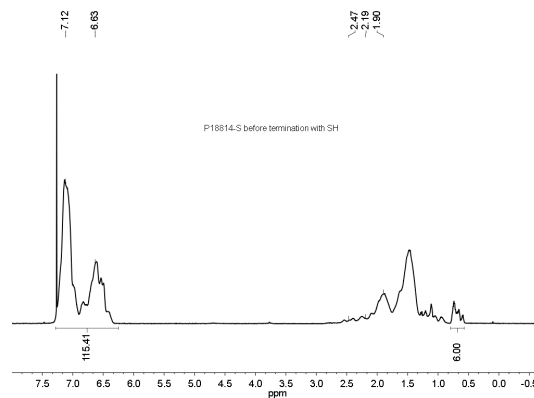
1. From hydroxy terminated polymer as illustrated below:



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

**Characterization:**

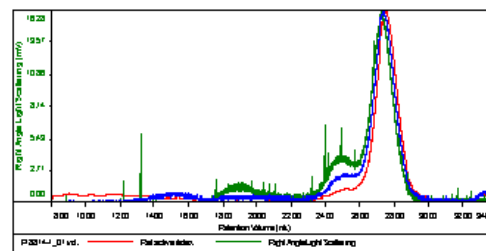
The molecular weight and polydispersity index of the hydroxyl terminated polymer were determined before functionalization with thiol by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with UV-vis and refractive index detectors. Polymer functionality was verified by oxidation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



**SEC:**

**Sample ID: P18814**

Concentration (mg/mL)	20582
Sample elution (mL)	0.1850
Mixed File	PS6014-11-2014-0000.dcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	Mn	Mw	Mp	Mw/Mn	IV
P18814-1_01udt	3,005	3,415	3,177	1.135	0.3252

