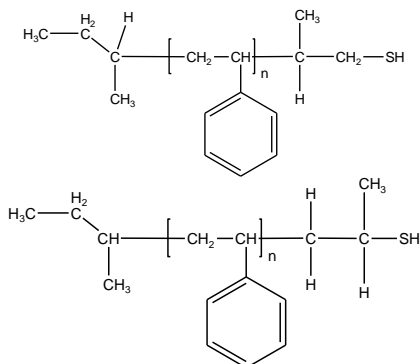


**Sample Name: Thiol Terminated Polystyrene**

**Sample # P18812-SSH**

**Route 2: (possible architectures)**



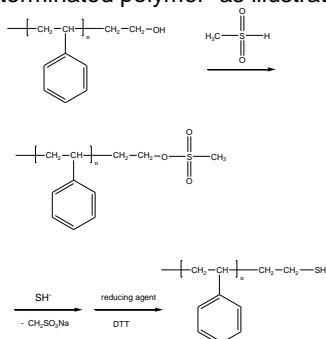
**Composition:**

Mn x 10 <sup>3</sup> (g/mol)	Mw/Mn	-SH functionality
2.5	1.05	>95%

**Synthesis:**

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

1. From hydroxy terminated polymer as illustrated below:

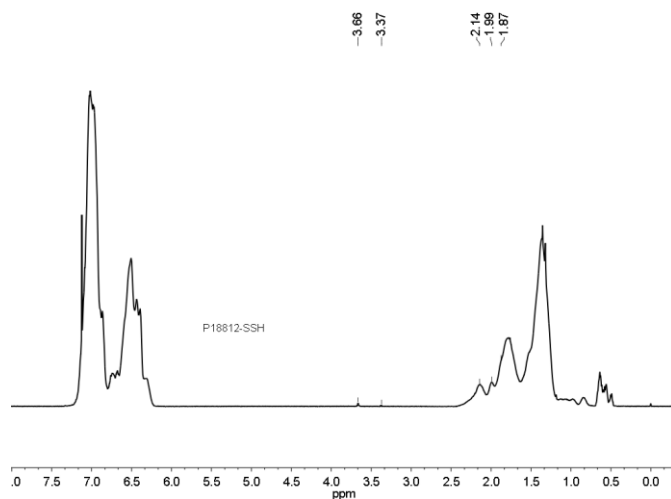
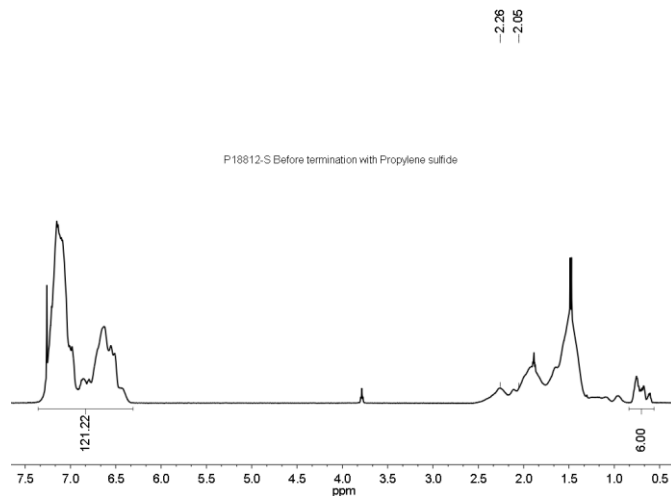


2. From direct termination of anionic living polymerization of styrene by ethylene sulfide or propylene sulfide. Polymerization of styrene by *sec*-BuLi in THF at -78°C and termination by purified ethylene sulfide or propylene sulfide.

**Characterization:**

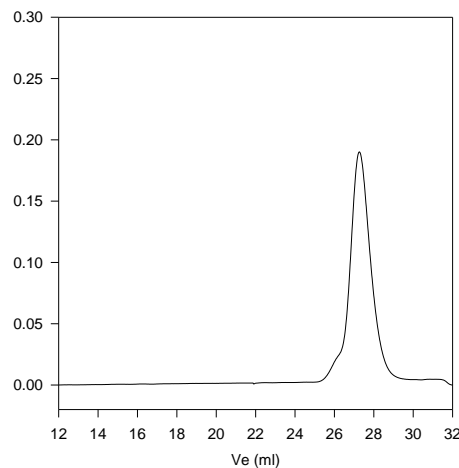
The molecular weight and polydispersity index of the hydroxyl terminated polymer were determined before functionalization with thiol by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with UV-vis and refractive index detectors. Polymer functionality was verified by oxidation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

**<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>):**



**SEC:**

**P18812-SSH**



Size exclusion chromatograph of thiol terminated polystyrene:

—  $M_n=2500$   $M_w=2700$   $PI=1.05$  (before termination with propylene sulfide)