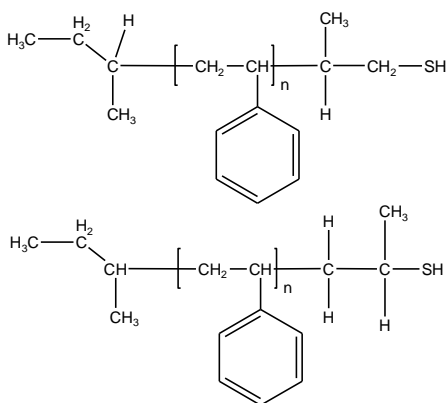


Sample Name: Thiol Terminated Polystyrene

Sample # P18808-SSH

Structure: (2 possible architectures)



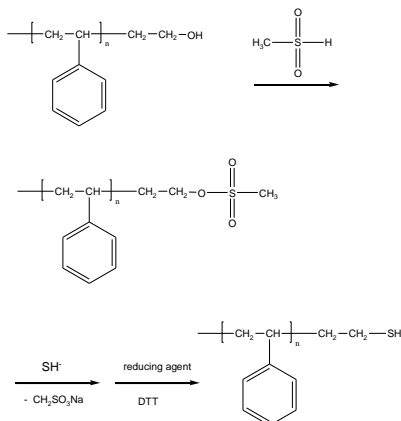
Composition:

Mn x 10 ³ (g/mol)	Mw/Mn	-SH functionality
0.8	1.10	>95%

Synthesis:

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

1. From hydroxy terminated polymer as illustrated below:

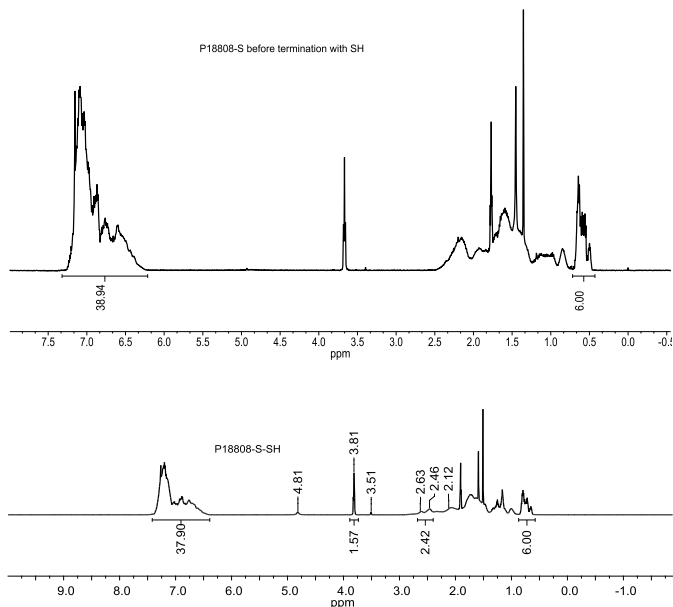


2. From direct termination of anionic living polymerization of styrene by ethylene sulfide or propylene sulfide. Polymerization of styrene by sec-BuLi in THF at -78°C and termination by purified ethylene sulfide or propylene sulfide.

Characterization:

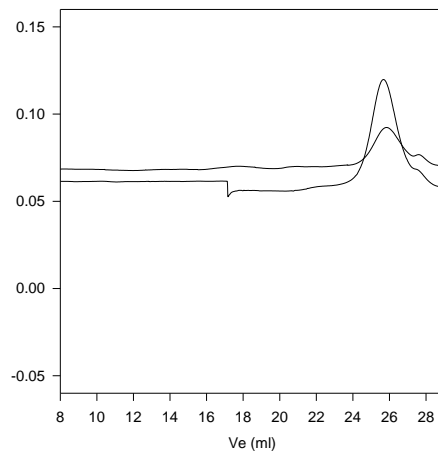
The molecular weight and polydispersity index of the hydroxyl terminated polymer were determined before functionalization with thiol by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with UV-vis and refractive index detectors. Polymer functionality was verified by oxidation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

¹H NMR (500 MHz, CDCl₃):



SEC:

P18808-SSH



Size exclusion chromatograph of thiol terminated polystyrene:

— Mn=800 Mw=900 PI=1.10
Before and after termination with Propylene sulfide Showing no disulfide formation

DSC: (2nd heating run, 20°C/min)

Sample: P18808-SSH
Size: 9.9000 mg
DSC
File: P18808-SSH.001

