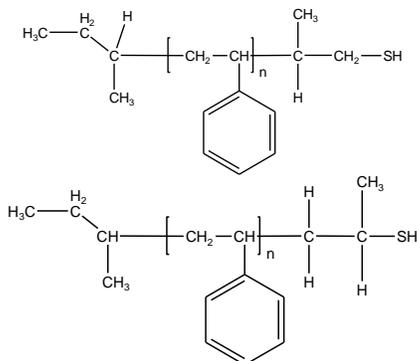


Sample Name: Thiol Terminated Polystyrene

¹H NMR (500 MHz, CDCl₃):

Sample # P18811-SSH

Route 2: (possible architectures)



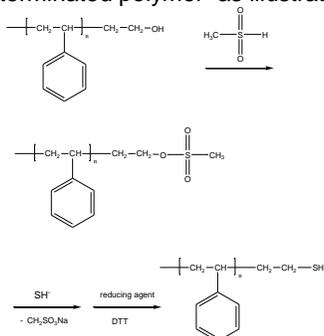
Composition:

Mn x 10 ³ (g/mol)	Mw/Mn	-SH functionality
0.7	1.10	>95%

Synthesis:

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

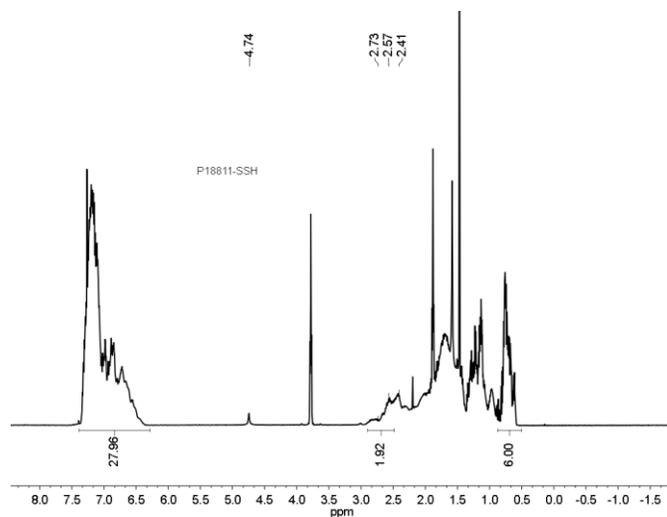
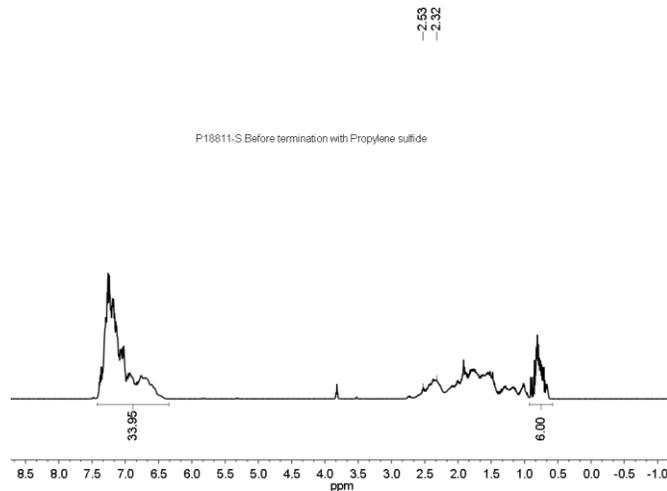
1. From hydroxy terminated polymer as illustrated below:



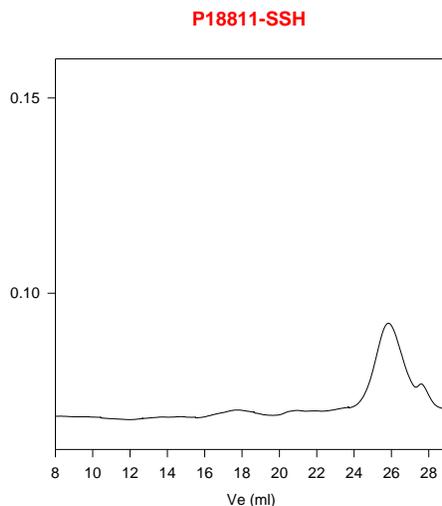
2. From direct termination of anionic living polymerization of styrene by ethylene sulfide or propylene sulfide. Polymerization of styrene by *sec*-BuLi in THF at -78°C and termination by purified ethylene sulfide or propylene sulfide.

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.



SEC:



Size exclusion chromatograph of thiol terminated polystyrene:
 — M_n=700 M_w=800 PI=1.10