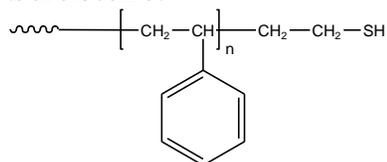


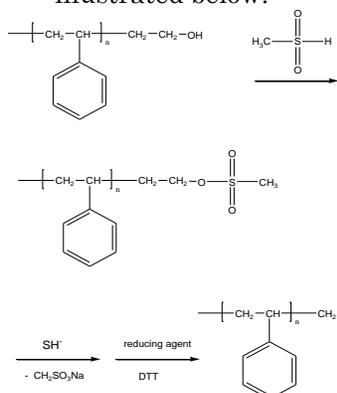
**Sample Name:****Thiol Terminated Polystyrene****Sample #: P8724-SSH****Structure:****Composition:**

M <sub>n</sub> x 10 <sup>3</sup>	PDI
11.5	1.08
SH- Functionality	>95%
T <sub>g</sub> (°C)	92

**Synthesis Procedure:**

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:**

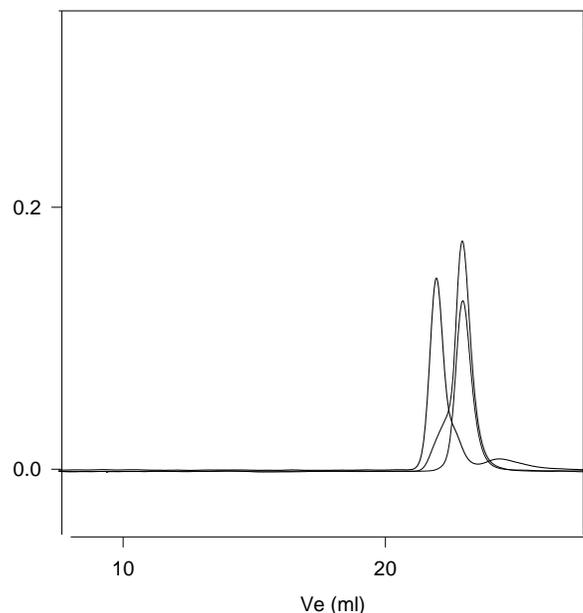
The molecular weight and polydispersity index of the hydroxyl terminated polymer were determined before functionalization with thiol by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. Polymer functionality was verified by oxidation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

**Thermal Analysis:**

Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T<sub>g</sub>) of the sample has been considered.

**Solubility:**

Polymer is soluble in THF, CHCl<sub>3</sub> and toluene.

**SEC of Sample:****P8724-SSH**

--- Thiol terminated Polystyrene, M<sub>n</sub>=11,500, M<sub>w</sub>= 12,400 PI=1.08  
After Reduction: Polystyrene-SH

After oxidation with iodine indicating the disulfide formation:  
SH functionality over 95%

**DSC thermogram for the polymer:**