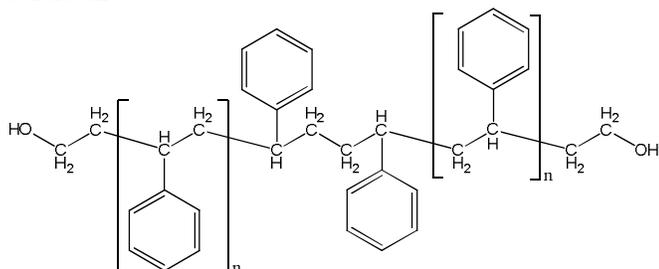


### Sample Name:

**$\alpha,\omega$ -Di(hydroxy)-terminated polystyrene,**  
(with styrene dimer group in the middle of polymer chain)

### Sample # P4577-S2OH

### Structure:

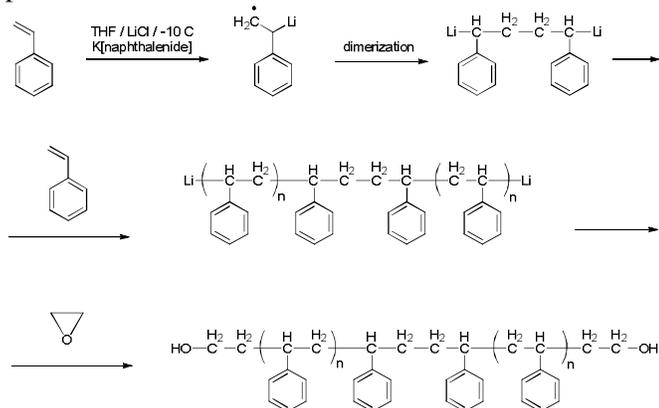


### Composition:

$M_n \times 10^3$ (g/mol)	$M_w/M_n$	Functionality
1.0	1.4	1.98

### Synthesis procedure:

$\alpha,\omega$ -Di(hydroxyl)-terminated polystyrene was prepared by living anionic polymerization of styrene using a bifunctional initiator in THF followed by termination with ethylene oxide. The scheme of reaction is presented below:



### Characterization:

End-group functionality of the polymer was confirmed by  $^1\text{H-NMR}$  spectroscopy.

The molecular weight and polydispersity index of the polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detectors.

### Solubility:

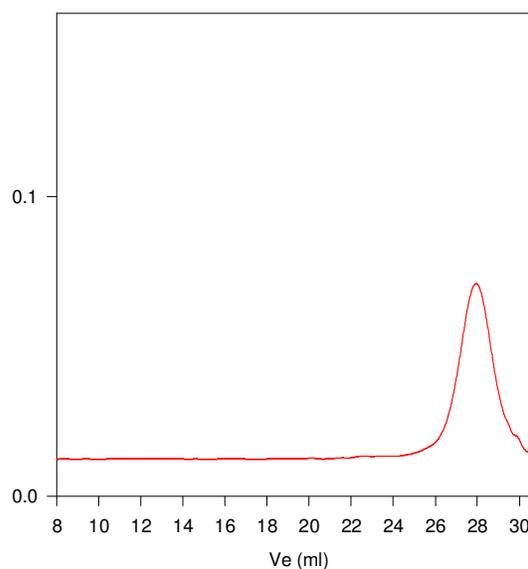
Polystyrene is soluble in toluene, THF, chloroform; and it precipitates from cold methanol, water.

### Thermal analysis:

Thermal analysis was performed on TA Instruments Q100 differential scanning calorimeter (DSC) under a nitrogen atmosphere. The glass transition temperature ( $T_g$ ) of the polymer was measured at a scan rate of  $10^\circ\text{C}/\text{min}$  shortly after creating thermal history of the sample.

### SEC elugram of the polymer:

**P4577-S2OH**



Size exclusion chromatography of  $\omega$ - $\alpha$  dihydroxy Terminated polystyrene:  
 $M_n=1000$ ,  $M_w=1400$  PI=1.4 functionality >1.98

### DSC thermogram for the polymer:

