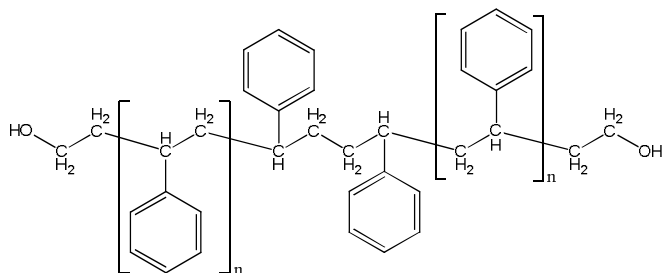


**Sample Name:** **$\alpha,\omega$ -Di(hydroxy)-terminated polystyrene,**

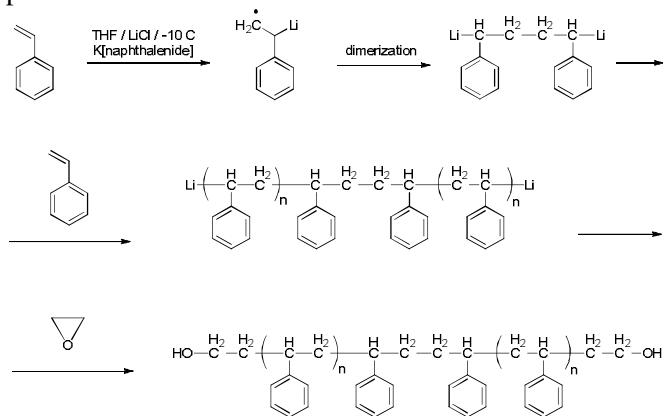
(with styrene dimer group in the middle of polymer chain)

**Sample # P5087-S2OH****Structure:****Composition:**

$M_n \times 10^3$ (g/mol)	$M_w/M_n$
650.0	1.4
Glass transition temperature ( $T_g$ ):	106 °C

**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:

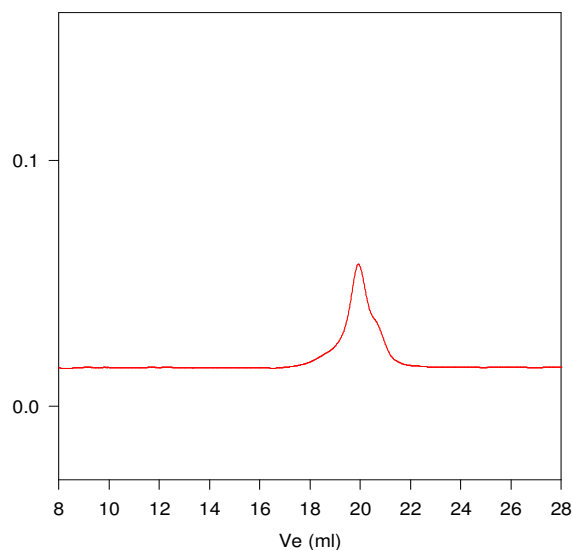
**Characterization:**

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.

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°C/min shortly after creating thermal history of the sample.

**Solubility:**

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

**SEC elugram of the polymer:****P5087-S2OH**

Size exclusion chromatography of  $\omega$ - $\alpha$  dihydroxy Terminated polystyrene:  
 $M_n=650000$ ,  $M_w=910000$ ,  $PI=1.4$ , functionality>1.80%

**DSC thermogram of the polymer:**