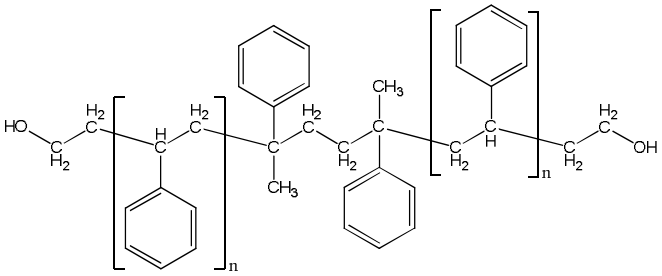
Sample Name:

α,ω-Di(hydroxy)-terminated polystyrene,
(*with α-methyl styrene dimer group in the middle of polymer chain*)

Sample # P5090-S2OH

Structure:

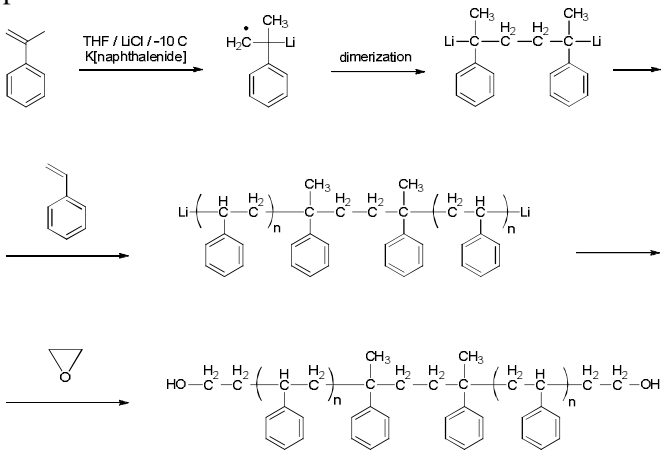


Composition:

$M_n \times 10^3$ (g/mol)	M_w/M_n
1990.0	1.25

Glass transition temperature (T_g):	100 °C

Synthesis procedure:
α,ω-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:

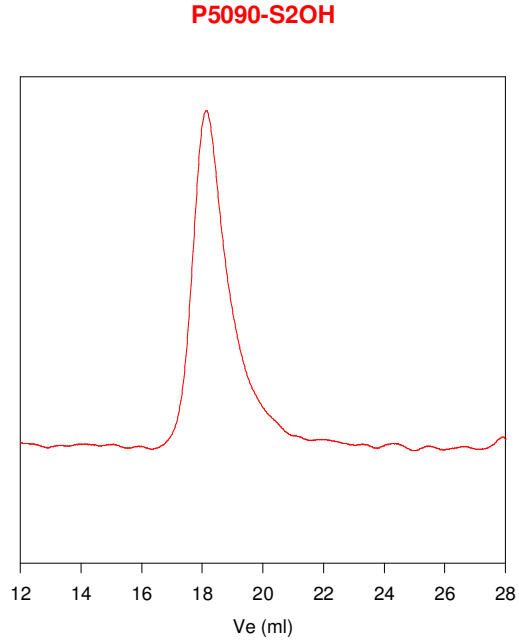


Characterization:
The molecular weight and polydispersity index of the polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detectors.

Thermal analysis was performed on TA Instruments Q100 differential scanning calorimeter (DSC) under a nitrogen atmosphere. The glass transition temperature (Tg) 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:



Size exclusion chromatography of ω–α dihydroxy Terminated polystyrene:
M_n=1990000, M_w=2480000, PI=1.25, functionality>1.8%
intrinsic viscosityL 5.78dl/g in THF at 30 oC. radius of Gyration: 78.28nm

DSC thermogram of the polymer: