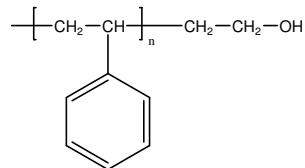


**Sample Name:**  
Hydroxy Terminated Polystyrene

**Sample #: P11119- SOH**

**Structure:**

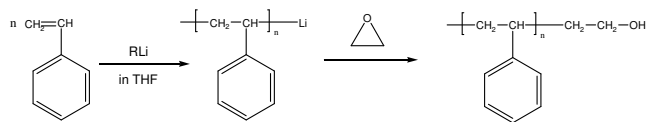


**Composition:**

Mn x 10 <sup>3</sup>	PDI
2.2	1.06

**Synthesis Procedure:**

$\omega$ -Hydroxy terminated Polystyrene was prepared by living anionic polymerization of styrene using a monofunctional initiator in THF followed by termination with ethylene oxide. The scheme of the reaction is illustrated below:



**Characterization:**

The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. Polymer functionality was determined by titration with NaOH using phenolphthalein as the indicator.

**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 ( $T_g$ ) has been considered.

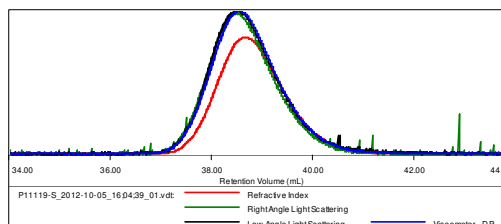
**Solubility:**

Polymer is soluble in toluene, THF, CHCl<sub>3</sub> and can be precipitated in water and cold methanol.

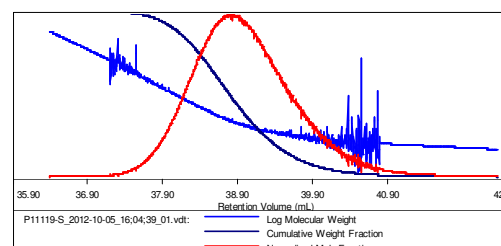
**SEC of Sample:**

Sample ID: P11119-S

Concentration (mg/mL)	43.4236
Sample dn/dc (mL/g)	0.1850
Method File	PS80K-Oct-2012-0001.vcm
Column Set	3xPL 1113-6300
System	System 1



Sample	Mn (Da)	Mw (Da)	Mp (Da)	Mw/Mn	IV (dL/g)
P11119-S_2012-10-05_16:04:39_01.vdt	2,237	2,367	2,308	1.058	0.0604



(PSOH) both having  $M_n$  of 1700 are compared at heating rate of 10°C/min. It has been found that the  $T_g$  of PSOH was 13°C higher (64°C) than the corresponding PS (51°C). Results are shown below:

Polystyrene		Hydroxy terminated PS	
$M_n \times 1000$	$T_g$ (°C)	$M_n \times 1000$	$T_g$ (°C)
0.95	27	0.90	37
1.7	51	1.7	64
3.7	71	3.7	72

**HNMR:**

