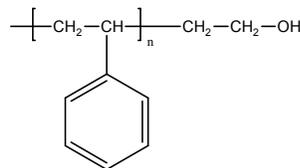


Sample Name:
Hydroxy Terminated Polystyrene

Sample #: P11121- SOH

Structure:

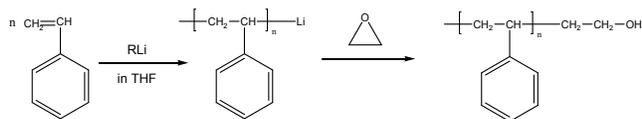


Composition:

$M_n \times 10^3$	PDI
1.2	1.09

Synthesis Procedure:

ω -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:

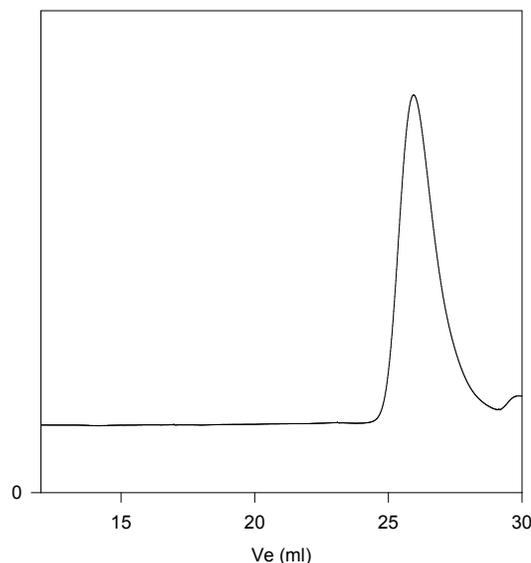
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T_g) has been considered.

Solubility:

Polymer is soluble in toluene, THF, CHCl_3 and can be precipitated in water and cold methanol.

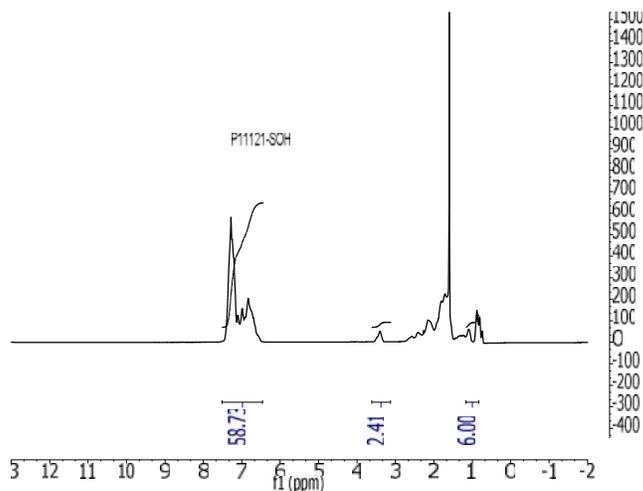
SEC of the Polymer:

P11121-SOH



Size Exclusion chromatography of Hydroxy end poly styrene
 — Polystyrene, $M_n=1,200$, $M_w=1,300$ PI=1.09

^1H NMR Spectrum of the polymer:



(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