

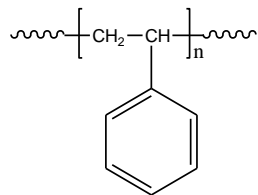
**Sample Name:** Polystyrene

**SEC of Homopolymer:**

**P7539-S**

**Sample #:** P7539-S

**Structure:**

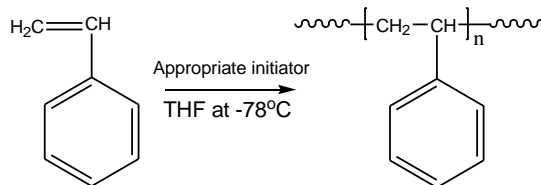


**Composition:**

$M_n \times 10^3$	PDI
61.0	1.05

**Synthesis Procedure:**

Polystyrene is obtained by living anionic polymerization of styrene as illustrated below:



**Characterization:**

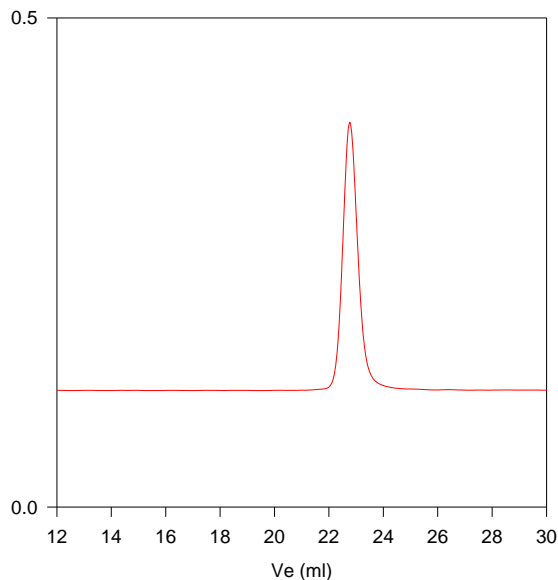
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple detectors from Viscotek Co.

**Thermal analysis:**

Thermal analysis of the sample was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of  $10^\circ\text{C}/\text{min}$ . The inflection glass transition temperature ( $T_g$ ) has been considered

**Solubility:**

Polystyrene is soluble in DMF, THF, toluene and  $\text{CHCl}_3$ . It precipitates from methanol, ethanol, water and hexanes.



Size exclusion chromatograph of polystyrene:

$M_n=61000$ ,  $M_w$ : 64000  $M_w/M_n=1.05$

Solution Viscosity in THF at  $35^\circ\text{C}$ : 0.399dl/g

$dn/dc$  in THF at  $35^\circ\text{C}$ : 0.185ml/g

Radius of Gyration in THF at  $35^\circ\text{C}$ : 9.68nm

$T_g$  of polystyrene as function of molecular weight

