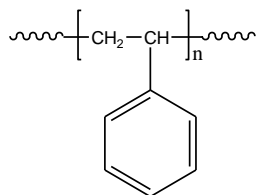


## Sample Name: Polystyrene

Sample #: P8637-S

### Structure:

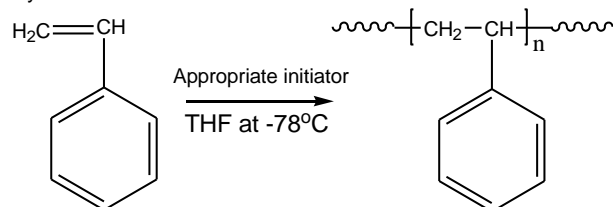


### Composition:

Mn x 10 <sup>3</sup>	PDI
300.0	1.2

### 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:

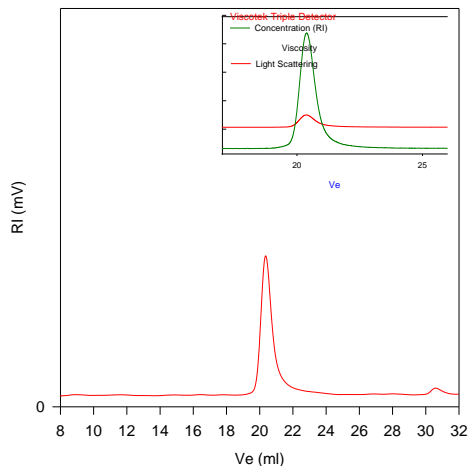
Thermal analysis of the sample was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of  $10^\circ\text{C}/\text{min}$ . The inflection glass transition temperature ( $T_g$ ) has been considered.

### Solubility:

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

## SEC of Homopolymer:

P8637-S



Size Exclusion Chromatography of polystyrene;

—  $M_n = 300,000$ ,  $M_w = 360,000$ ,  $M_w/M_n = 1.2$

In box Light Scattering data from Triple detectors:  
 $dn/dc$  in THF 0.185ml/g Solution Viscosity in THF at  $35^\circ\text{C}$ : 1.34dl/g  
 $R_{90}$ : 25.44nm

### $T_g$ of polystyrene as function of molecular weight

