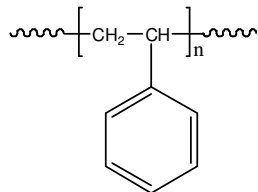


## Sample Name: Polystyrene

Sample #: P4439-S

### Structure:

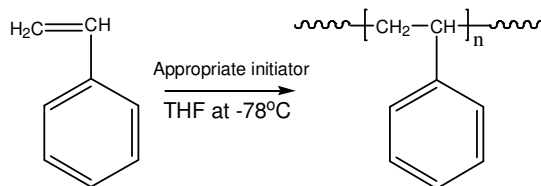


### Composition:

Mn x 10 <sup>3</sup>	PDI
420.0	1.15

### 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.

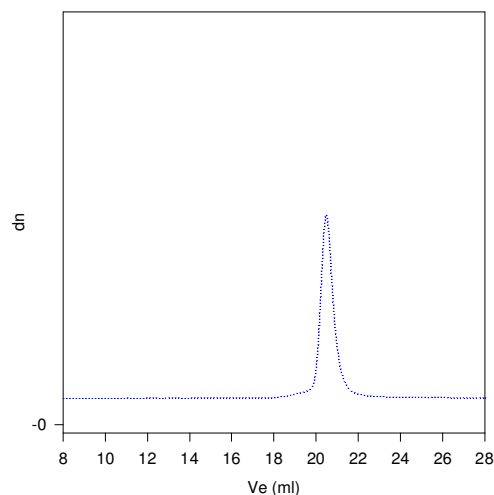
Thermal analysis of the sample was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature ( $T_g$ ) has been considered.

### Solubility:

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

## SEC of Homopolymer

P4439-S



Size Exclusion Chromatography of polystyrene

$M_n=420000$ ,  $M_w=483,000$ ,  $M_w/M_n=1.13$

Solution Viscosity in THF at 30 °C: 1.368dl/g Radius of Gyration: 24.62nm

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

