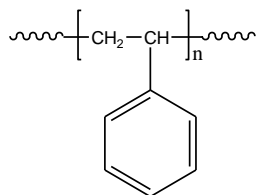


## Sample Name: Polystyrene

Sample #: **P8641-S**

### Structure:

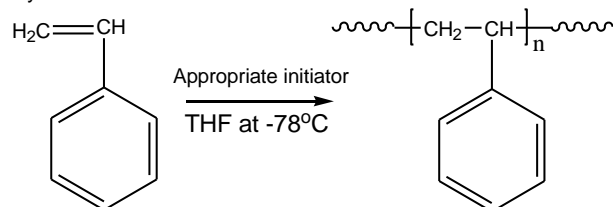


### Composition:

| Mn x 10 <sup>3</sup> | PDI  |
|----------------------|------|
| 520.0                | 1.10 |

### 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:

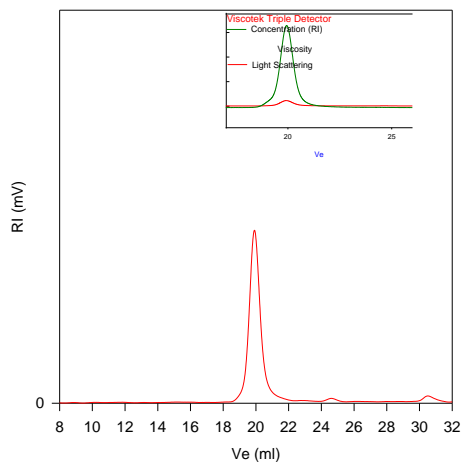
Thermal analysis of the sample was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T<sub>g</sub>) has been considered.

### Solubility:

Polystyrene is soluble in DMF, THF, toluene and CHCl<sub>3</sub>. It precipitates from methanol, ethanol, water and hexanes.

### SEC of Homopolymer:

#### P8641-S



Size Exclusion Chromatography of polystyrene;

—  $M_n = 520,000$ ,  $M_w = 572,000$ ,  $M_w/M_n = 1.10$

In box Light Scattering data from Triple detectors:

dn/dc in THF 0.185ml/g Solution Viscosity in THF at 35 °C: 1.852dl/g

R<sub>g</sub>:32.10nm

#### T<sub>g</sub> of polystyrene as function of molecular weight

