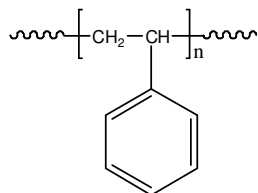


**Sample Name: Polystyrene**

**Sample #: P5014-S**

**Structure:**

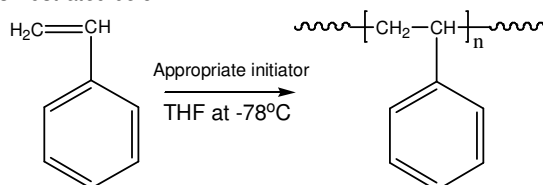


**Composition:**

| $M_n \times 10^3$ | PDI  |
|-------------------|------|
| 40.4              | 1.05 |

**Synthesis Procedure:**

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



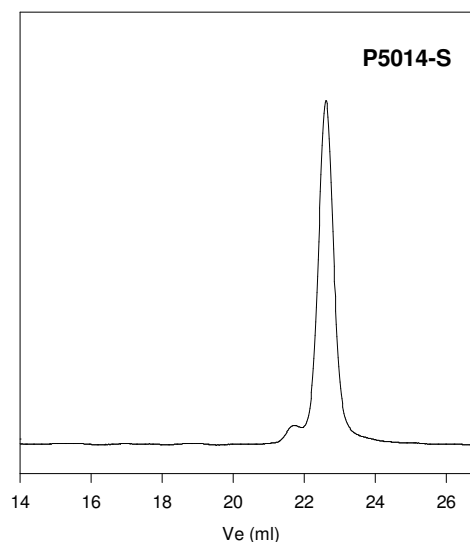
**Characterization:**

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.

**Solubility:**

Polystyrene is soluble in DMF, THF, toluene and  $CHCl_3$ . It precipitates from methanol, ethanol, water and hexanes.

**SEC of Homopolymer:**



Size Exclusion Chromatography of polystyrene

$M_n=40,400$ ,  $M_w=42,500$ ,  $M_w/M_n=1.05$

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

$T_g$  of polystyrene as function of molecular weight

