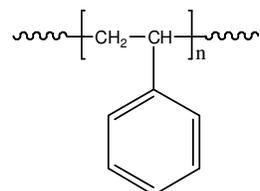


Sample Name: Polystyrene

Sample #: P1507-S

**Structure:**

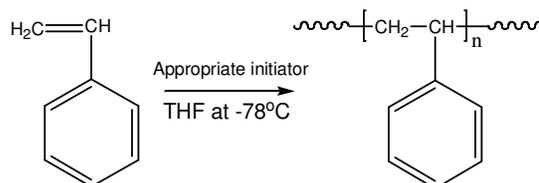


**Composition:**

$M_n \times 10^3$	PDI
24.0	1.03

**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.

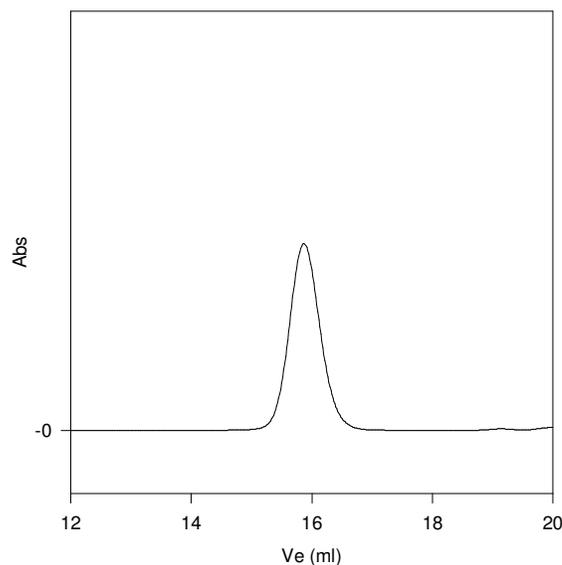
Thermal analysis of the sample was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of  $10^\circ C/min$ . The inflection glass transition temperature ( $T_g$ ) has been considered.

**Solubility:**

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

**SEC of Homopolymer:**

**P1507-S**



Size exclusion chromatograph of polystyrene:

$M_n=24000$ ,  $M_w=24700$ ,  $M_z=25900$ ,  $PI=1.03$

solution Viscosity in THF at  $30^\circ C$ :  $0.202 dl/g$  and radius of gyration:  $5.48$  nm obtained by Viscotek detectors

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

