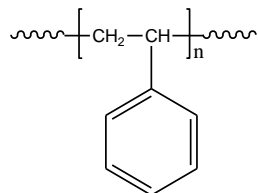


**Sample Name:** Polystyrene

**Sample #:** P8931-S

**Structure:**

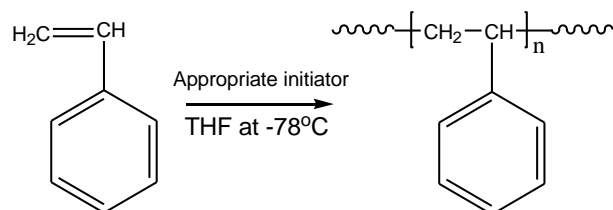


**Composition:**

$M_n \times 10^3$	PDI
1900.0	1.18
$T_g$ (°C)	106

**Synthesis Procedure:**

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



**Characterization:**

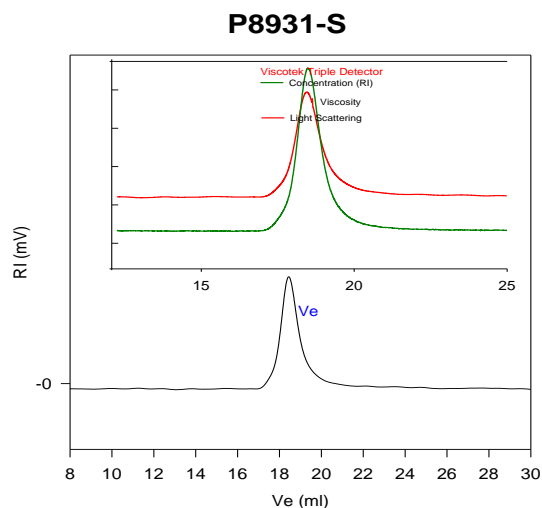
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple 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:**

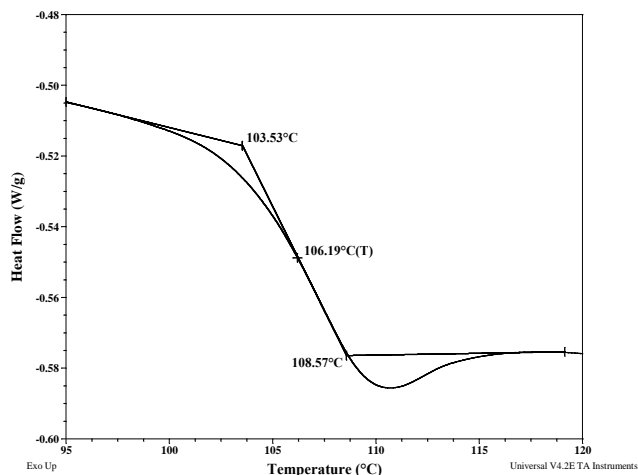


Size Exclusion Chromatography of polystyrene;

—  $M_n = 1,900,000$ ,  $M_w = 2,240,000$ ,  $M_w/M_n = 1.18$

In box Light Scattering data from Triple detectors:  
 $dn/dc$  in THF 0.185ml/g solution Viscosity in THF at 35 °C: 3.068 dl/g  
RgW: 51.06nm

**DSC thermogram for the polymer:**



$T_g$  of polystyrene as function of molecular weight

