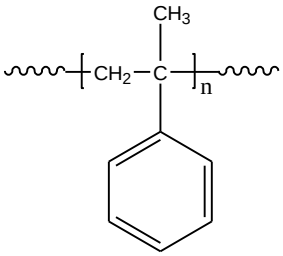
Sample Name: **Poly (α-methyl styrene)**

Sample #: **P9102- α MeS**

Structure:

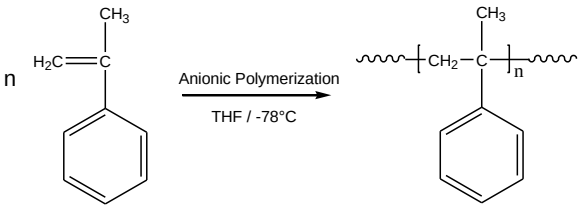


Composition:

$Mn \times 10^3$	PDI
308.0	1.10
T_g (^oC)	173

Synthesis Procedure:

Poly(**α**-methyl styrene) is synthesized by living anionic polymerization of **α** -methyl styrene and the reaction scheme is shown below.



Characterization:

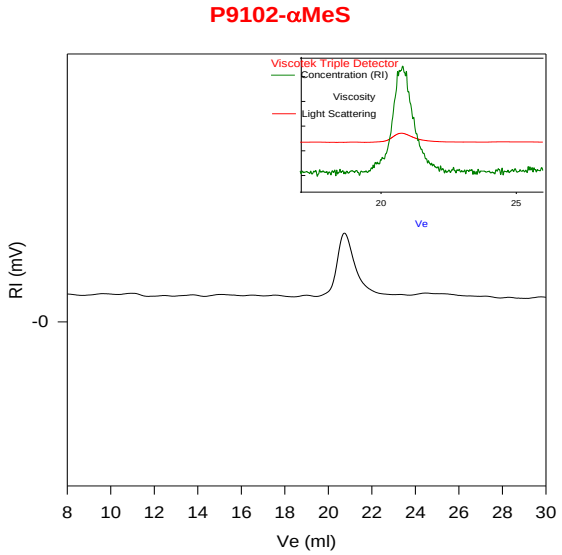
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple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

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10^{o}C/min.The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

Poly(**α** -methyl styrene**)** is soluble in DMF, THF, toluene and $CHCl_3$. It precipitates from methanol, ethanol, water and hexanes.

SEC of Homopolymer:



Size Exclusion Chromatography of polymer;

M_n = 308,000, M_w =339,000, 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 oC: 0.949dl/g
Radius of Gyration: 21.88nm

DSC thermogram for the polymer: