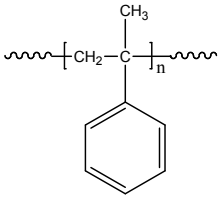
Sample Name: **Poly(α-methyl styrene) Electronic grade**

Sample #: P8839-MeS

Structure:

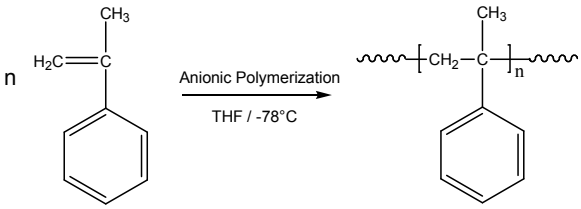


Composition:

Mn × 10^3	PDI
510.0	1.10
T_g (°C)	178

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°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).

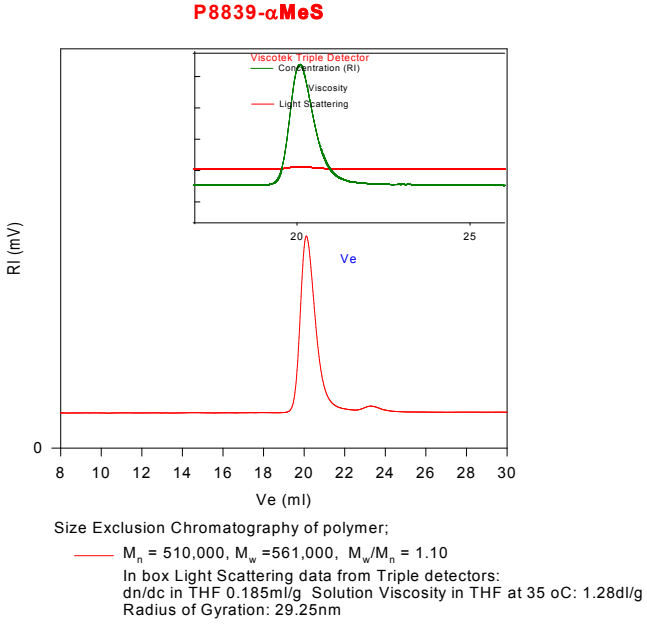
Solubility:

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

Purification and Filtration:

The obtained polymer was dissolved in benzene and filter through a membrane with a pore-size of 0.5 µm nylon filter. The obtained solution was freeze dried under vacuum.

SEC of Homopolymer:



Size Exclusion Chromatography of polymer;
M_n = 510,000, M_w =561,000, 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: 1.28dl/g
Radius of Gyration: 29.25nm

DSC thermogram for the polymer: