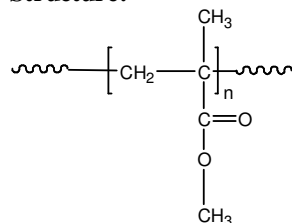


Sample Name: Poly(methyl methacrylate)

*Different Microstructure*

Sample #: P7491A-MMA

**Structure:**



**Composition:**

$M_n \times 10^3$	PDI
450.0	1.5
Syndio: Hetero:Iso	58:37:5

**Synthesis Procedure:**

Atactic poly(methyl methacrylate) is obtained by control radical polymerization or GTP process.

**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 Viscoek Co.

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

**Solubility:**

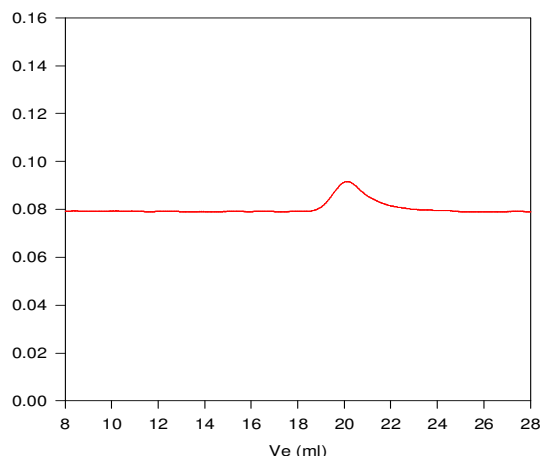
Poly(tert butylmethacrylate) is soluble in THF,  $\text{CHCl}_3$ , toluene and dioxane. The polymer precipitates from cold methanol and ethanol.

**$T_g$  vs MW for selected atactic poly methyl methacrylate**

$M_n \times 10^3$	$T_g$ (°C)	$M_n \times 10^3$	$T_g$ (°C)
1.1	51	36	98
2.5	76	55	111
5.0	91	70	107
15	101	127	115
19	107	230	114
29	96	700	121

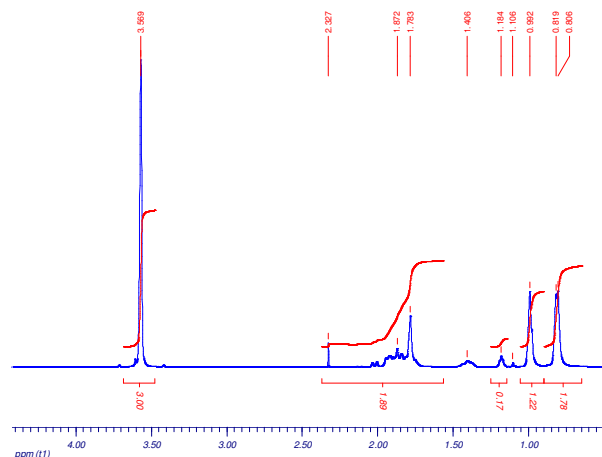
**SEC elugram of Homopolymer:**

**P7491A-MMA**

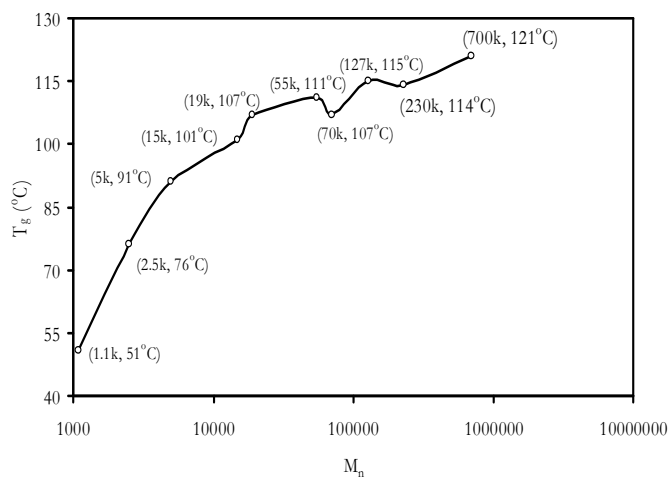


Size exclusion chromatograph of polymethylmethacrylate-rich in atactic  
 $M_n=450,000$ ,  $M_w=690,000$ ,  $PI=1.5$   
Solution Viscosity in THF at 35 °C: 2.44dl/g  
Radius of Gyration in THF at 35 °C: 33.98 nm  
 $dn/dc$  in THF at 35°C: 0.084ml/g

**NMR spectrum of Homopolymer:**



$T_g$  of atactic poly methyl methacrylate as function of molecular weight



(v.K-01)