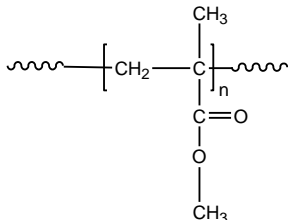


Sample Name: **Poly(methyl methacrylate)**  
*Different Microstructure*

Sample #: **P7397-MMA**

**Structure:**



**Composition:**

$M_n \times 10^3$	PDI
32.0	1.6
Syndio : Hetero : Isotactic	54 : 39 : 7

**Synthesis Procedure:**

Poly(methyl methacrylate) was obtained by GTP process.

**Characterization:**

Tacticity of the polymer was determined by  $^1\text{H}$  NMR. The molecular weight and polydispersity index (PDI) were 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 using a differential scanning calorimeter (TA Q100) at a heating rate of  $10^\circ\text{C}/\text{min}$ . The inflection glass transition temperature ( $T_g$ ) of the sample has been considered.

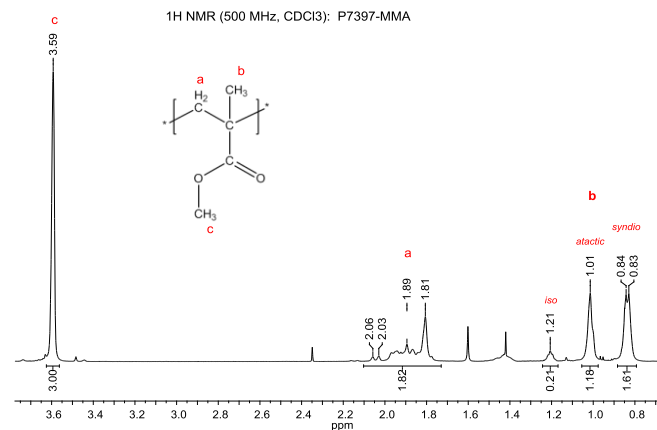
**Solubility:**

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

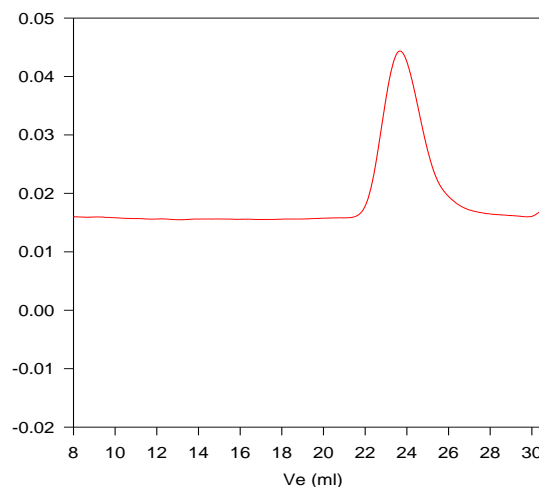
**$T_g$  vs MW for selected atactic PMMA:**

$M_n \times 10^3$	$T_g (^\circ\text{C})$	$M_n \times 10^3$	$T_g (^\circ\text{C})$
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

**$^1\text{H}$  NMR spectrum of PMMA:**



**SEC elugram of PMMA homopolymer:**  
**P7397-MMA (atactic form)**



Size exclusion chromatograph of polymethylmethacrylate-rich in atactic:  
 $M_n=32000$ ,  $M_w=51000$  PI=1.6  
 Solution Viscosity in THF at  $35^\circ\text{C}$ : 0.319 dL/g  
 Radius of gyration: 7.5 nm  
 data from triple detectors from Viscotek Co.

**DSC:**

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

