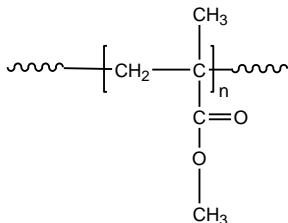


**Sample Name: Poly(methyl methacrylate)**

*Different microstructure*

**Sample #: P10713A-MMA**

**Structure:**



**Composition:**

$M_n \times 10^3$	PDI
30.0	1.4
Syndio : Hetero : Isotactic	55 : 39 : 6

**Synthesis Procedure:**

Poly(methyl methacrylate) is obtained by free radical polymerization or ATRP using CuBr as catalyst / or GTP process in toluene or in THF.

**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.

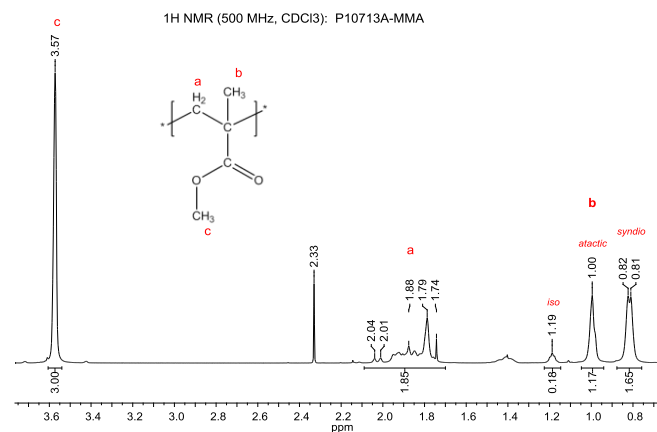
**Solubility:**

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

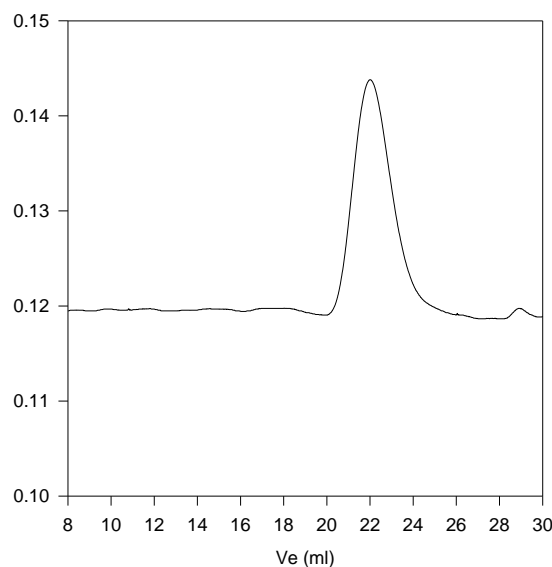
**$T_g$  vs MW for selected atactic PMMA:**

$M_n \times 10^3$	$T_g (^\circ\text{C})$	$M_n \times 10^3$	$T_g (^\circ\text{C})$
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:**  
**P10713A-MMA**



Size exclusion chromatograph of polymethylmethacrylate-rich in atactic:  
 $M_n=30,000$ ,  $M_w=42,000$ ,  $PI=1.4$

**DSC:**

*Tg of atactic poly methyl methacrylate as function of molecular weight*

