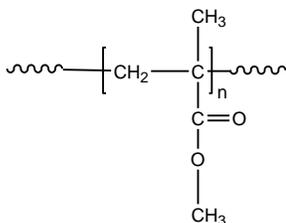


**Sample Name: Poly(methyl methacrylate)***Different microstructure***Sample #: P14201-MMA****Structure:****Composition:**

$M_n \times 10^3$	PDI
14.0	1.09

Syndio : Hetero : Isotactic	54 : 40 : 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.

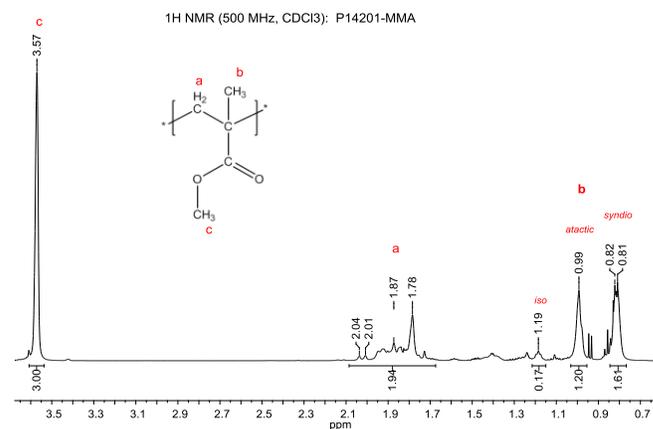
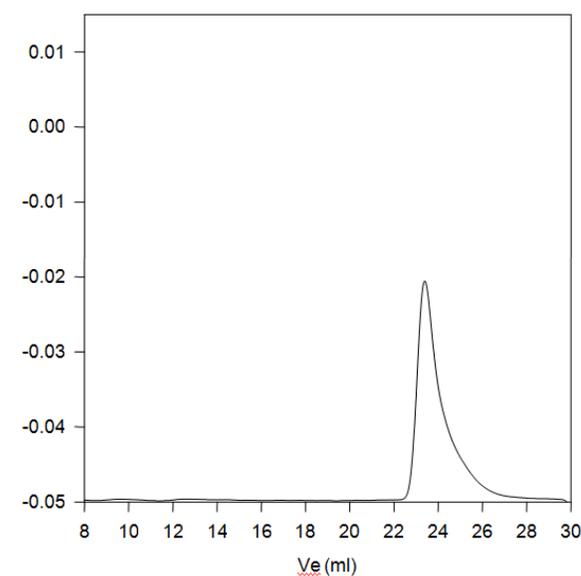
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of  $10^\circ\text{C}/\text{min}$ . The inflection glass transition temperature ( $T_g$ ) of the sample has been considered.

**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: P14201-MMA**

Size exclusion chromatograph of polymethylmethacrylate-rich in atactic:  
 $M_n = 14,000$ ,  $M_w = 15,300$ ,  $\text{PI} = 1.09$

**DSC:**

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

