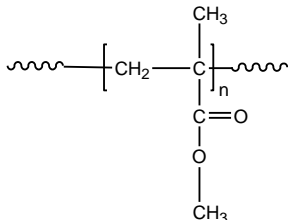


Sample Name: **Poly(methyl methacrylate)**  
*Different Microstructure*

Sample #: **P3243-MMA**

**Structure:**



**Composition:**

Mn x 10 <sup>3</sup>	PDI
64.6	1.6
Syndio : Hetero : Isotactic	56 : 39 : 5

**Synthesis Procedure:**

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

**Characterization:**

Tacticity of the polymer was determined by <sup>1</sup>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°C/min. The inflection glass transition temperature (T<sub>g</sub>) of the sample has been considered.

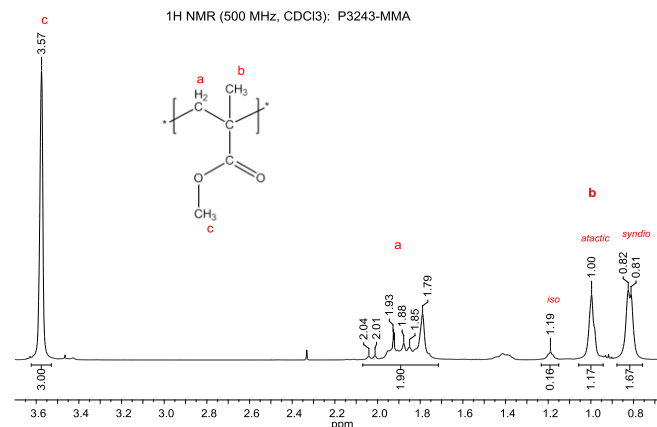
**Solubility:**

The polymer is soluble in THF, CHCl<sub>3</sub>, toluene and dioxane. The polymer precipitates from cold methanol and ethanol.

**T<sub>g</sub> vs MW for selected atactic PMMA:**

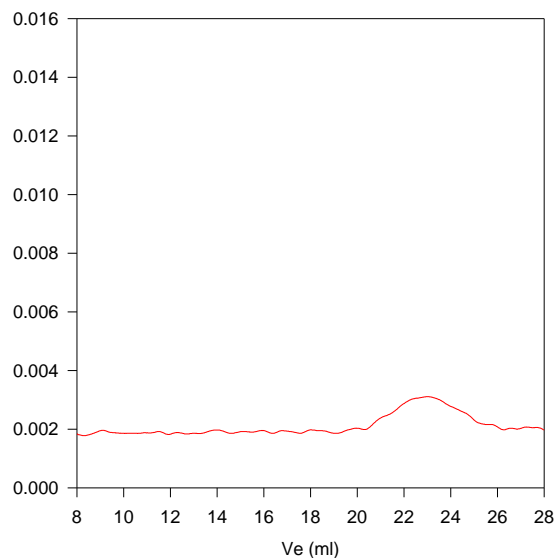
M <sub>n</sub> × 10 <sup>3</sup>	T <sub>g</sub> (°C)	M <sub>n</sub> × 10 <sup>3</sup>	T <sub>g</sub> (°C)
1.1	51	36	98
2.5	76	55	111
5.0	91	70	107
15	101	127	115
19	107	230	114
29	96	700	121

**<sup>1</sup>H NMR spectrum of PMMA:**



**SEC elugram of PMMA homopolymer:**

**P3243-MMA**



Size exclusion chromatograph of polymethylmethacrylate-rich in atactic:

M<sub>n</sub>=64,600, M<sub>w</sub>=104,300 PI=1.6

**DSC:**

T<sub>g</sub> of atactic poly methyl methacrylate as function of molecular weight

