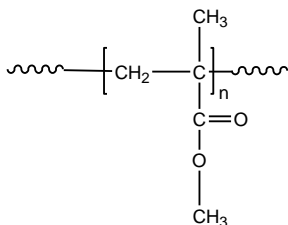


**Sample Name: Poly(methyl methacrylate)**

*Different microstructure*

**Sample #: P8440-MMA**

**Structure:**



**Composition:**

|                             |             |
|-----------------------------|-------------|
| Mn x 10 <sup>3</sup>        | PDI         |
| 59.0                        | 1.3         |
| Syndio : Hetero : Isotactic | 54 : 39 : 7 |

**Synthesis Procedure:**

Poly(methyl methacrylate) is obtained by controlled radical polymerization or GTP process.

**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.

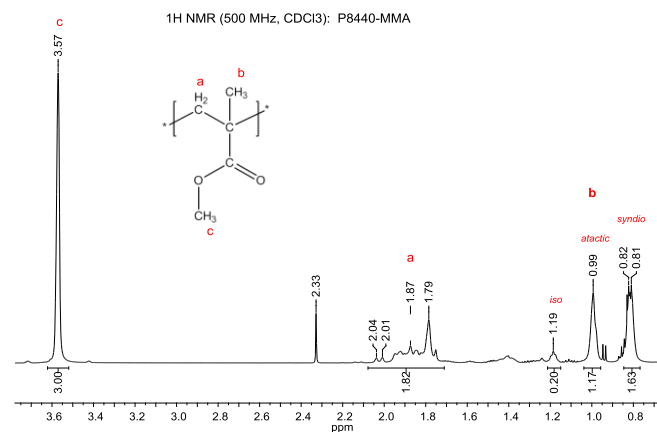
**Solubility:**

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:**

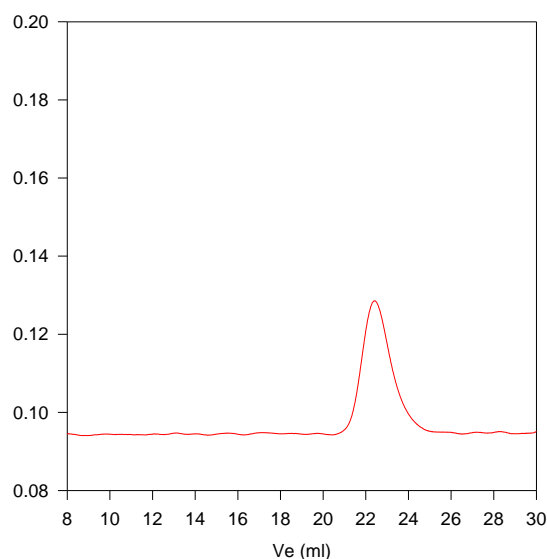
| M <sub>n</sub> × 10 <sup>3</sup> | T <sub>g</sub> (°C) | M <sub>n</sub> × 10 <sup>3</sup> | T <sub>g</sub> (°C) |
|----------------------------------|---------------------|----------------------------------|---------------------|
| 1.1                              | 51                  | 36                               | 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:**

**P8440-MMA**



Size exclusion chromatograph of polymethylmethacrylate-rich in atactic:  
M<sub>n</sub>=59000, M<sub>w</sub>=76700, PI=1.30

**DSC:**

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

