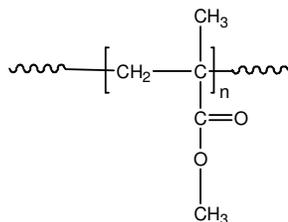


**Sample Name: Poly(methyl methacrylate)**  
**(Isotactic Form)**

**Sample #: P5410C-iMMA**  
**(iso contents over 98%)**

**Structure:**



**Composition:**

Mn x 10 <sup>3</sup>	PDI
1400.0	1.9

**Synthesis Procedure: (only for reference, contact us if you want to know the specific batch)**

Isotactic Poly(methyl methacrylate) is obtained by living anionic polymerization in toluene using a Grignard initiator such as t-butylmagnesium bromide.

**Characterization:**

The molecular weight and polydispersity index (PDI) are 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. <sup>1</sup>H NMR analysis was carried out on Varian instrument at 500MHz.

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.

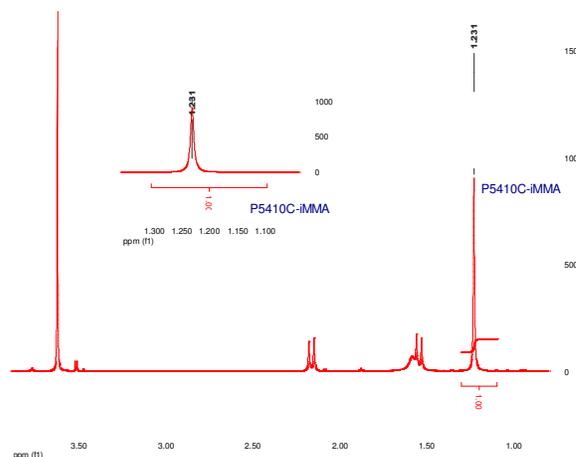
**Solubility:**

Poly(methyl methacrylate) is soluble in THF, CHCl<sub>3</sub>, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

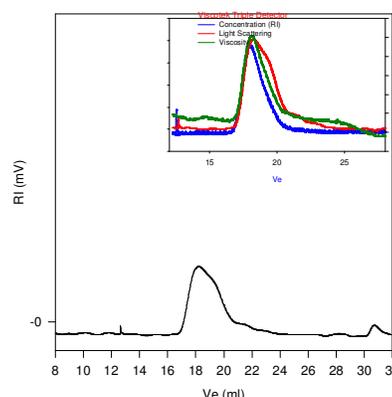
**T<sub>g</sub> vs MW for selected isotactic PMMA**

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)
3.4	31	40	51
6.3	52	93	53
10	48	170	57
15	52	332	55
30	46	769	51

**NMR of Isotactic PMMA**

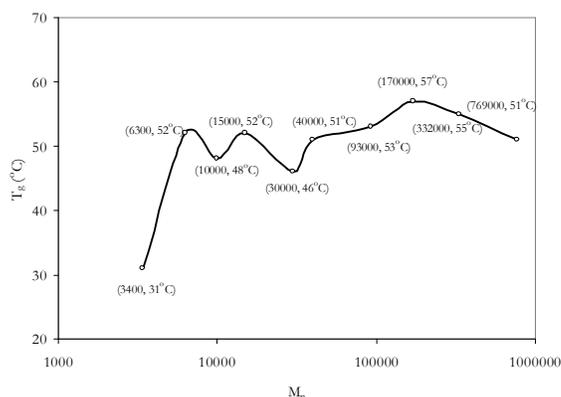


**SEC of the Homopolymer: P5410C-iMMA**



Size Exclusion Chromatography of isotactic poly(methyl methacrylate):  
 — M<sub>n</sub> = 1400,000, M<sub>w</sub> = 2660,000, M<sub>w</sub>/M<sub>n</sub> = 1.9  
 Rg = 71.30 nm Solution Viscosity in THF at 35 °C: 0.084 ml/g  
 dn/dc in THF at 35 °C: 0.084 ml/g  
 (from Viscotek Triple detector)

**T<sub>g</sub> of isotactic MMA as function of molecular weight**



**References for further information:**

S. K. Varshney, R. Fayt, Ph. Teyssie, US Patent 5,629,393, 1997