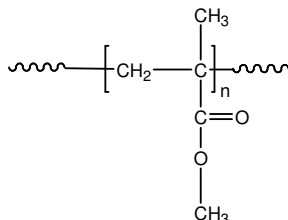


Sample Name: **Poly(methyl methacrylate)**
Isotactic Form

Sample #: **P3863D-iMMA**
(iso contents over 95%)

Structure:



Composition:

$M_n \times 10^3$	PDI
55.0	2.2

Synthesis Procedure:

Isotactic Poly(methyl methacrylate) is obtained by living anionic polymerization in toluene using a lithium silicate initiator.

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. ^1H 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 $10^\circ\text{C}/\text{min}$. The inflection glass transition temperature (T_g) of the sample has been considered.

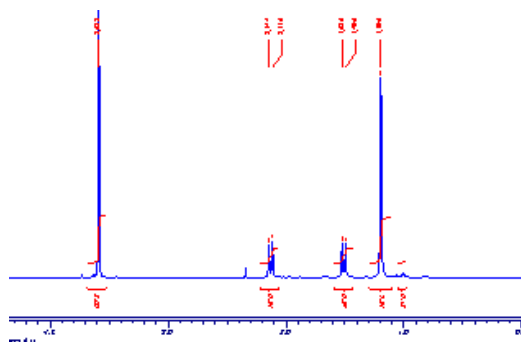
Solubility:

Poly(methyl methacrylate) is soluble in THF, CHCl_3 , toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

T_g vs MW for selected isotactic PMMA

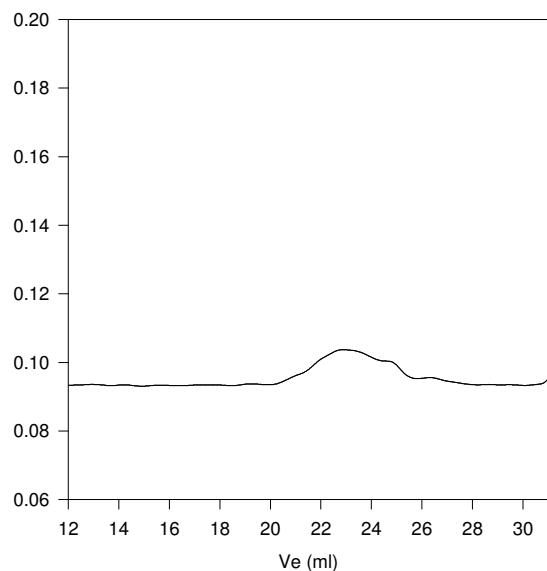
$M_n \times 10^3$	T_g ($^\circ\text{C}$)	$M_n \times 10^3$	T_g ($^\circ\text{C}$)
3.4	31	40	51
6.3	52	93	53
10	48	170	57
15	52	332	55
30	46	769	51

^1H NMR of Isotactic PMMA (example):



SEC elugram of the Homopolymer:

P3863D-iMMA



Size exclusion chromatography of poly(methyl methacrylate)

$M_n=55,000$, $M_w=120,000$ $PI=2.2$

DSC:

T_g of isotactic MMA as function of molecular weight

