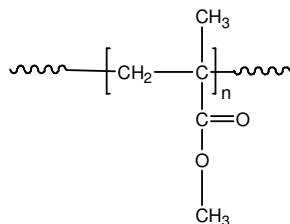


Sample Name: Poly(methyl methacrylate)
(Isotactic Form)

Sample #: P5410A-iMMA
(iso contents over 98%)

Structure:



Composition:

Mn x 10 ³	PDI
40.0	2.0

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. 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°C/min. The inflection glass transition temperature (T_g) of the sample has been considered.

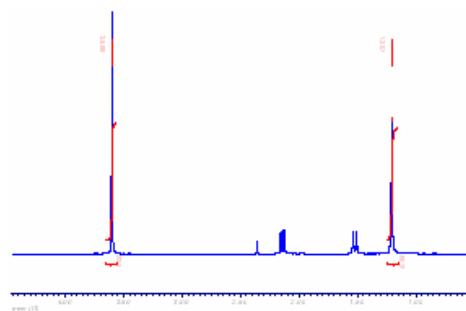
Solubility:

Poly(methyl methacrylate) is soluble in THF, CHCl₃, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

T_g vs MW for selected isotactic PMMA

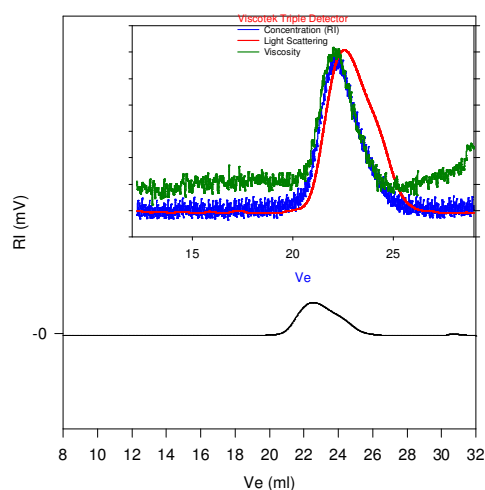
M _n × 10 ³	T _g (°C)	M _n × 10 ³	T _g (°C)
3.4	31	40	51
6.3	52	93	53
10	48	170	57
15	52	332	55
30	46	769	51

NMR of Isotactic PMMA



SEC of the Homopolymer:

P5410A-iMMA



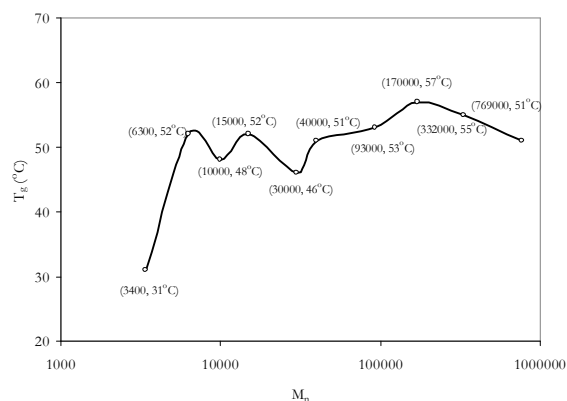
Size Exclusion Chromatography of isotactic poly(methyl methacrylate):

M_n = 40,000, M_w = 90,000, M_w/M_n = 2.0

η_{sp} = 9.87 ml/g Solution Viscosity in THF at 35 °C: 0.535 dl/g
dn/dc in THF at 35 °C: 0.084 ml/g

(from Viscotek Triple detector)

T_g 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