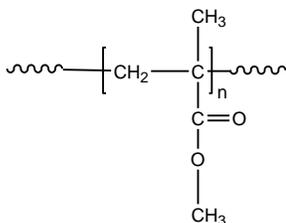


Sample Name: Poly(methyl methacrylate)

Different microstructure

Sample #: P9140A-MMA

Structure:



Composition:

Mn x 10 ³	PDI
123.0	1.15

Syndio : Hetero : Isotactic	56 : 39 : 5
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Synthesis Procedure:

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

Characterization:

Tacticity of the polymer was determined by ¹H 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_g) of the sample has been considered.

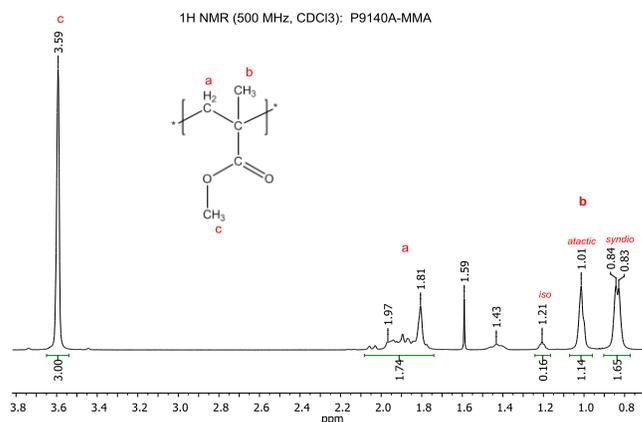
Solubility:

The polymer is soluble in THF, CHCl₃, toluene and dioxane. The polymer precipitates from cold methanol and ethanol.

T_g vs MW for selected atactic PMMA:

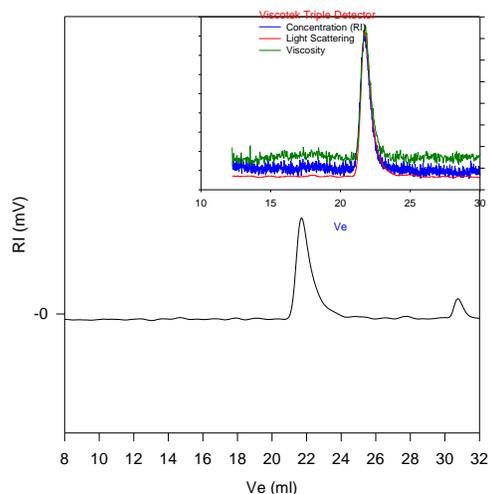
M _n × 10 ³	T _g (°C)	M _n × 10 ³	T _g (°C)
1.1	51	36	98
2.5	76	55	111
5.0	91	70	107
15	101	127	115
19	107	230	114
29	96	700	121

¹H NMR spectrum of PMMA:



SEC elugram of PMMA homopolymer:

P9140A-MMA



Size Exclusion Chromatography of poly(methyl methacrylate)-Atactic:

— M_n = 123,000, M_w = 142,000, M_w/M_n = 1.15
 Solution Viscosity in THF At 35 °C: 0.571 dl/g
 RgW: 14.23 nm
 dn/dc in THF at 35 °C: 0.084 ml/g

DSC:

T_g of atactic poly methyl methacrylate as function of molecular weight

