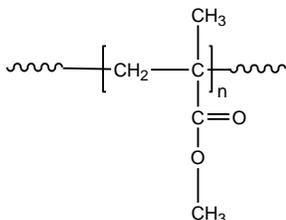


Sample Name: Poly(methyl methacrylate)

Different Microstructure

Sample #: P3243-MMA

Structure:



Composition:

Mn x 10 ³	PDI
64.6	1.6
Syndio : Hetero : Isotactic	56 : 39 : 5

Synthesis Procedure:

Poly(methyl methacrylate) is obtained by free radical polymerization or ATRP using CuBr as a catalyst, or by 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.

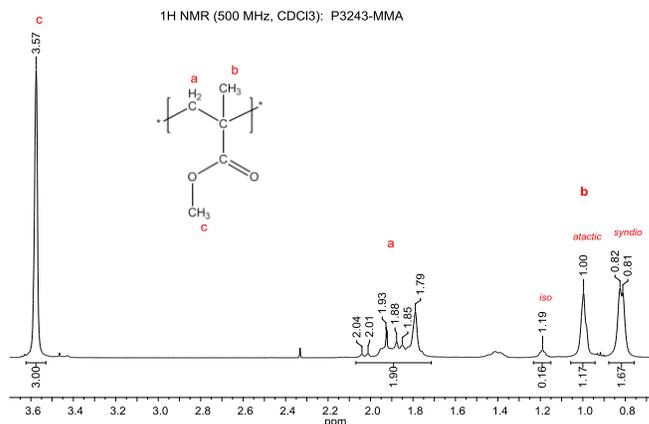
Solubility:

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:

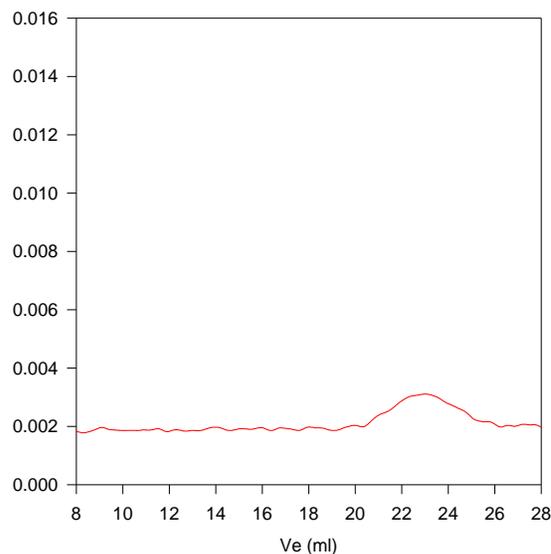
M _n × 10 ³	T _g (°C)	M _n × 10 ³	T _g (°C)
1.1	51	36	98
2.5	76	55	111
5.0	91	70	107
15	101	127	115
19	107	230	114
29	96	700	121

¹H NMR spectrum of PMMA:



SEC elugram of PMMA homopolymer:

P3243-MMA



Size exclusion chromatograph of polymethylmethacrylate-rich in atactic:

M_n=64,600, M_w=104,300 PI=1.6

DSC:

T_g of atactic poly methyl methacrylate as function of molecular weight

