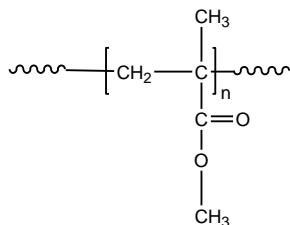


Sample Name: Poly(methyl methacrylate)

Different microstructure

Sample #: P8516-MMA

Structure:



Composition:

| | |
|-----------------------------|---------|
| Mn x 10 ³ | PDI |
| 165.0 | 1.17 |
| Syndio : Hetero : Isotactic | 57:38:5 |

Synthesis Procedure:

Poly(methyl methacrylate) is obtained by controlled radical polymerization or GTP process.

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.

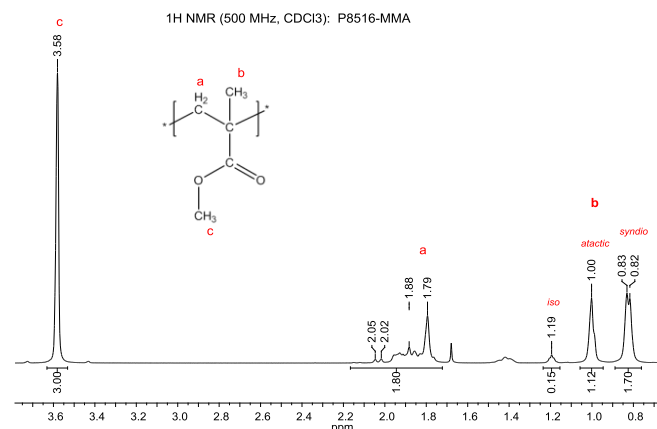
Solubility:

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:

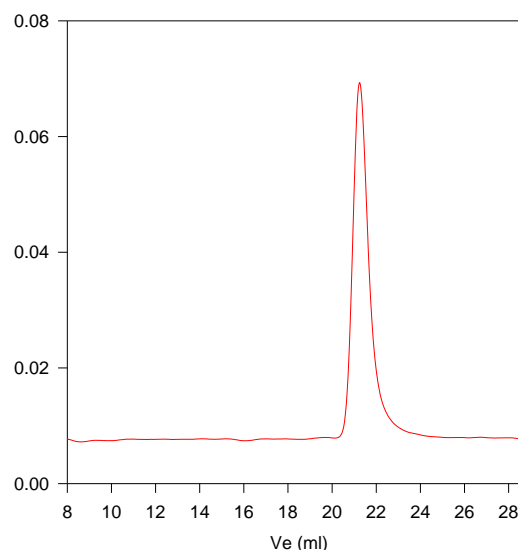
| M _n × 10 ³ | T _g (°C) | M _n × 10 ³ | T _g (°C) |
|----------------------------------|---------------------|----------------------------------|---------------------|
| 1.1 | 51 | 36 | 98 |
| 2.5 | 76 | 55 | 111 |
| 5.0 | 91 | 70 | 107 |
| 15 | 101 | 127 | 115 |
| 19 | 107 | 230 | 114 |
| 29 | 96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

¹H NMR spectrum of PMMA:



SEC elugram of PMMA homopolymer:

P8516-MMA



DSC:

T_g of atactic poly methyl methacrylate as function of molecular weight

