

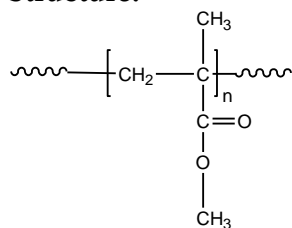
Sample Name: **Poly(methyl methacrylate)**

Different

Microstructure

Sample #: **P7622D-MMA**

**Structure:**



**Composition:**

$M_n \times 10^3$	PDI
37.0	1.4
Syndio: Hetero:Iso	58: 37:5

**Synthesis Procedure:**

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

**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.

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:**

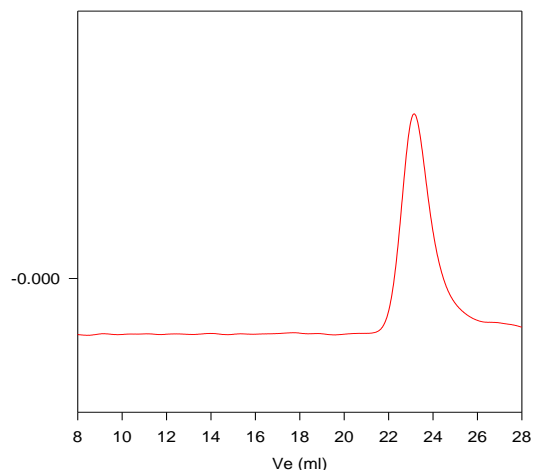
Poly(tert butylmethacrylate) is soluble in THF,  $\text{CHCl}_3$ , toluene and dioxane. The polymer precipitates from cold methanol and ethanol.

**$T_g$  vs MW for selected atactic poly methyl methacrylate**

$M_n \times 10^3$	$T_g$ (°C)	$M_n \times 10^3$	$T_g$ (°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

**SEC of the Homopolymer:**

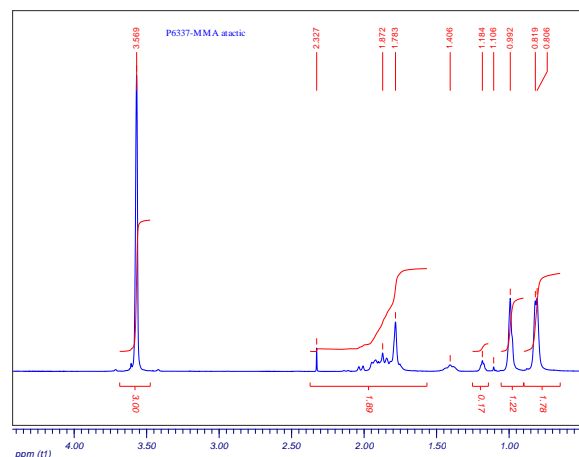
**P7622D-MMA**



Size exclusion chromatograph of atactic poly(methyl methacrylate):

$M_n=37000$ ,  $M_w=48500$  PI=1.4

**NMR of the Homopolymer:**



**$T_g$  of atactic poly methyl methacrylate as function of molecular weight**

