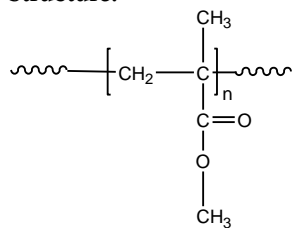


Sample Name:

Poly (methyl methacrylate) Broad Distribution: over 79% syndiotactic content

Sample #: P90-MMA

Structure:

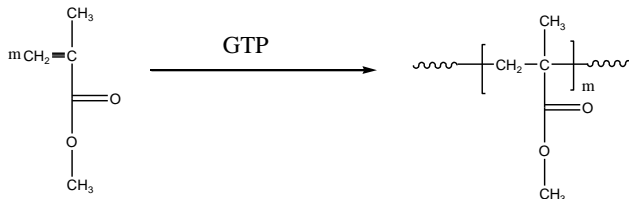


Composition:

Mn x 10 ³	PDI
62.1	1.14

Synthesis Procedure:

Poly(methyl methacrylate) is prepared by group transfer radical polymerization of methyl methacrylate in the presence of 1-methoxy-1-(trimethylsiloxy)-2-methyl-1-propene and tetrabutylammonium bi(benzoate). The scheme of the reaction is illustrated below:



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.

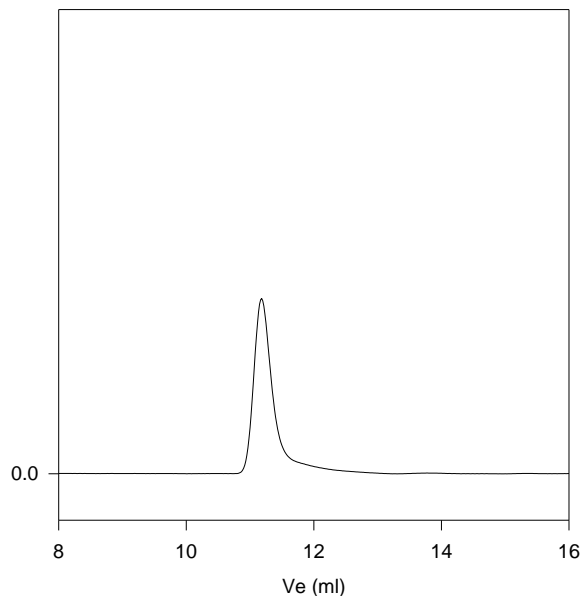
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T_g) of the sample has been considered.

Solubility:

Poly(methyl methacrylate) is soluble in THF, CHCl_3 , toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

SEC of Sample

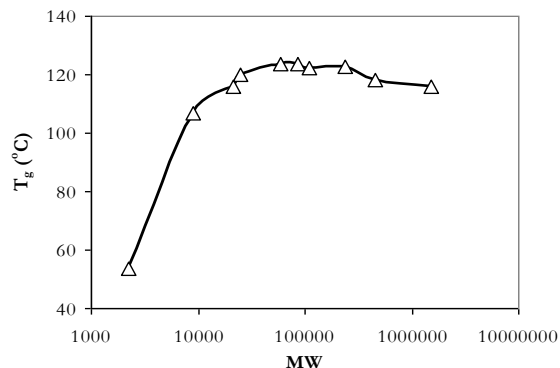
P90-MMA



Size exclusion chromatography of poly(methyl methacrylate):

$M_n=62100$, $M_w=70900$, $M_z=75800$, $M_w/M_n=1.14$

T_g of MMA as function of molecular weight



References for further information:

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- Ph. Teyssie, Ph. Bayard, R. Jerome, S. K. Varshney, and J. S. Wang, *35th IUPAC International Union of Pure & Applied Chemistry International Symposium on Macromolecules* 1994, 67.
- Ph. Teyssie, R. Fayt, J. P. Hautekeer, C. Jacobs, R. Jerome, L. Leemans and S. K. Varshney *Makromolekular Chemie, Macromol. Symp.*, 1990, 32, 61-73.
- S. K. Varshney, J. P. Hautekeer, R. Fayt, R. Jerome, and Ph. Teyssie *Macromolecules*, 1990, 23, 2618-2622.