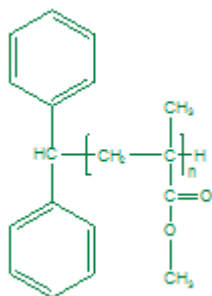


Sample Name: **Poly(methyl methacrylate)**
Syndiotactic rich contents >79%

Sample #: **P6604-MMA**

Structure:

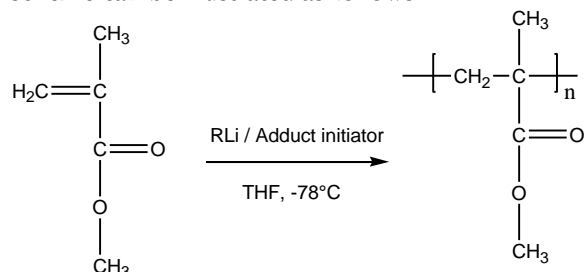


Composition:

$M_n \times 10^3$	PDI
1.35	1.18
T_g	69°C

Synthesis Procedure:

Syndiotactic Poly(methyl methacrylate) is obtained by living anionic polymerization using diphenylmethyl lithium as initiator. The polymerization of MMA monomer is carried out in THF at -78°C in the presence of LiCl as additive. For further details please see the following references.⁽¹⁻⁴⁾ The polymerization scheme can be illustrated as follows:



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. ^1H NMR analysis was carried out on Varian instrument at 500MHz.

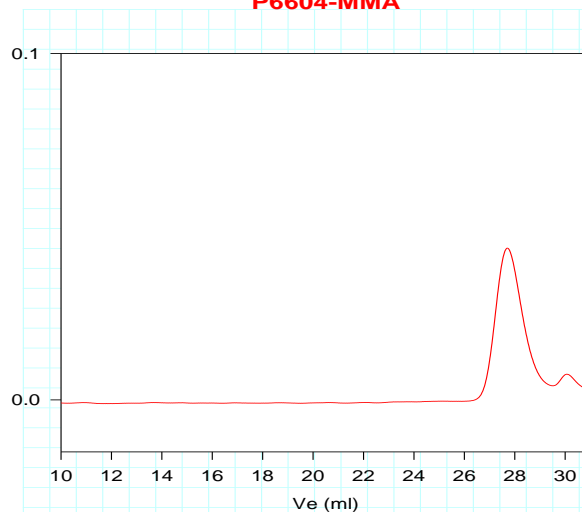
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of $10^\circ\text{C}/\text{min}$. The inflection glass transition temperature (T_g) of the sample has been considered.

Solubility:

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

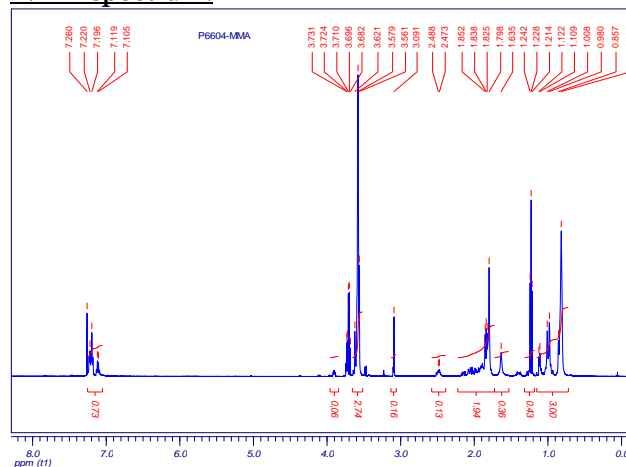
SEC of Sample

P6604-MMA

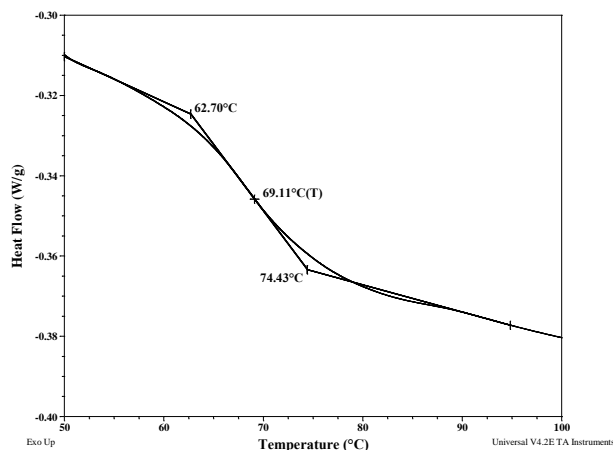


Size exclusion chromatograph of Poly(methyl methacrylate):
 $M_n=1,350$, $M_w=1,600$, $PI=1.18$
 (Verified by NMR)

NMR spectrum:



Thermogram of for the polymer:



References for further information:

1. S. K. Varshney, R. Fayt, Ph. Teyssie, US Patent 5,629,393, 1997
2. Ph. Bayard, R. Fayt, Ph. Teyssie and S. K. Varshney, Vuillemin B, Phillipe, H, US patent 5,677,387, 1997.
3. Ph. Bayard, R. Fayt, Ph. Teyssie and S. K. Varshney, B, Vuillemin, H. Phillipe, US patent 5,687,534, 1997.
4. S. K. Varshney, R. Fayt, Ph. Teyssie, US Patent 5,723,559, 1998.
 (e) Ph. Teyssie, S. K. Varshney, R. Jerome, R. Fayt US patent, 4,826,941., 1989.