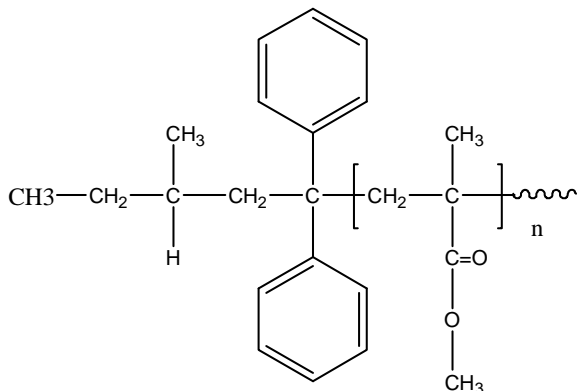


Sample Name: **Poly(methyl methacrylate)**
Atactic polymer

Sample #: **P13080-MMA**

Structure:



Composition:

Mn x 10 ³	PDI
5.5	1.2
Syndio : Hetero : Iso	39 : 55 : 6
T _g	104°C

Synthesis Procedure:

Tacticity of the poly(methyl methacrylate) is tailored by anionic polymerization of MMA monomer in different polarity solvents mixture and using different ligands.

Characterization:

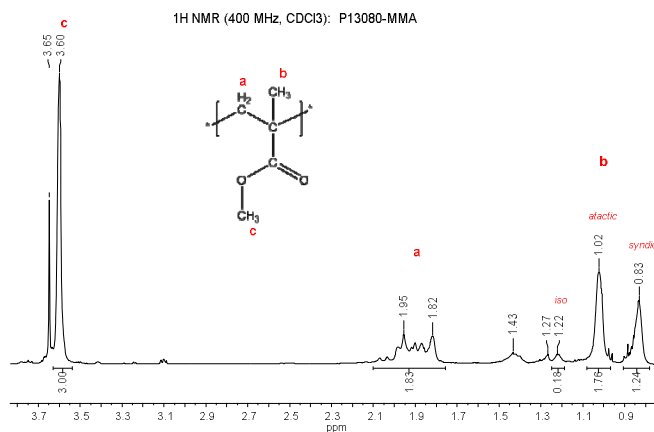
Tacticity of the polymer was determined by ¹H NMR. The molecular weight and polydispersity index (PDI) were obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns 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:

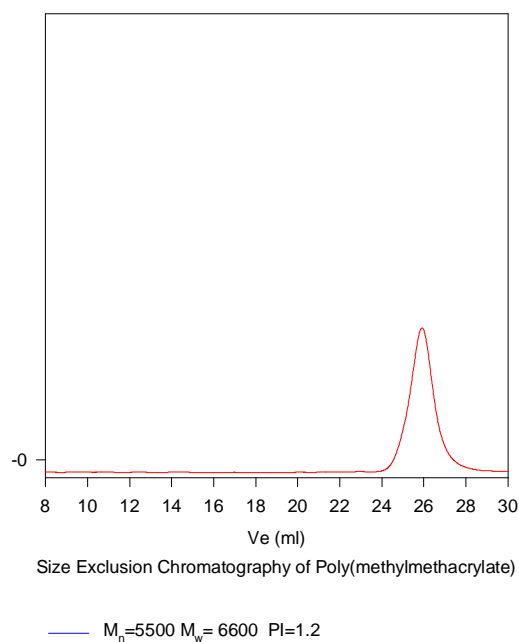
The polymer is soluble in chloroform.

¹H NMR spectrum of PMMA:

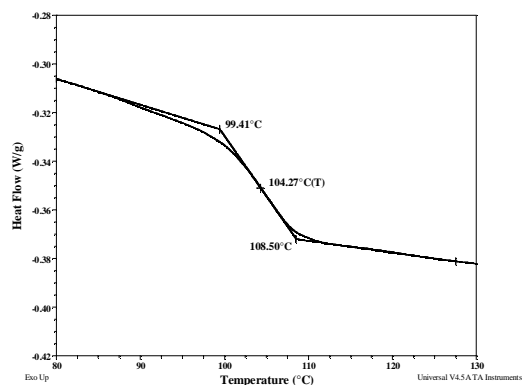


SEC elugram of PMMA homopolymer:

P13080-MMA

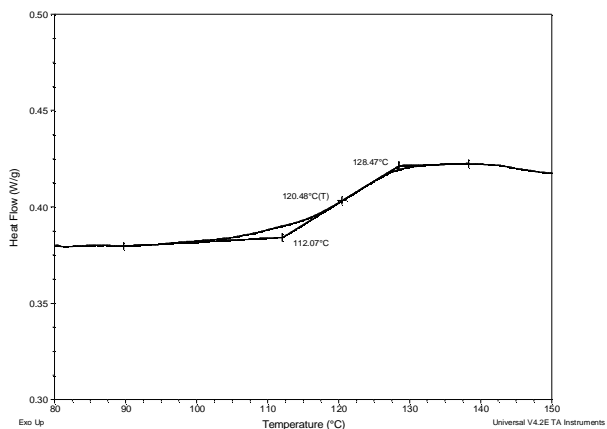


DSC thermogram of the polymer P13080-MMA:

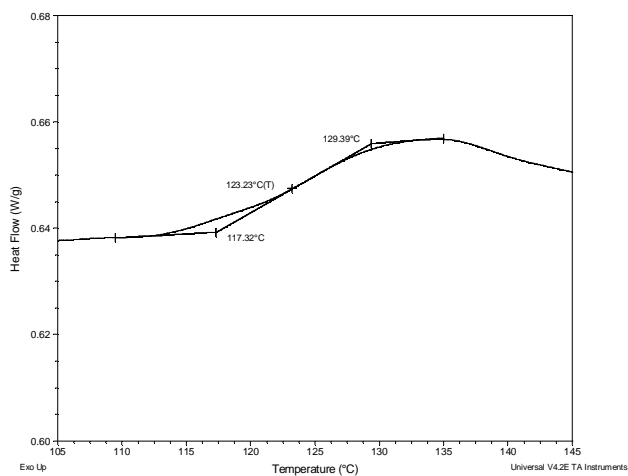


DSC thermograms of PMMA:

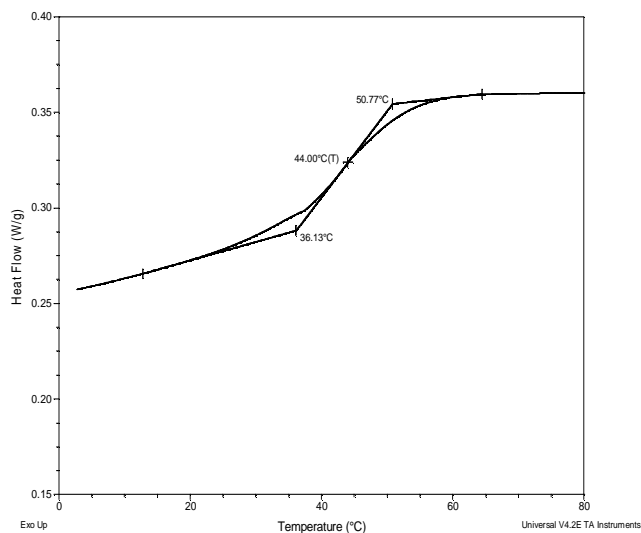
(a) syndiotactic >79%



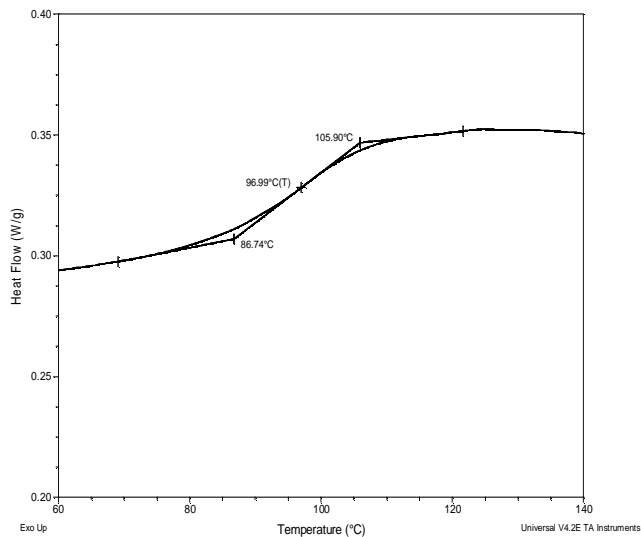
(b) syndiotactic >85%



(c) isotactic >97%



(d) atactic



Summary of glass transition temperatures of PMMA of different tacticity:

<i>PMMA microstructure</i>	<i>Tacticity Syndio : Iso : Hetero</i>	<i>T_g (°C)</i>
Syndiotactic >79%	79 : 19 : 2	120
Syndiotactic >85%	86 : 0 : 14	123
Isotactic >97%	0 : 97 : 3	44
Atactic	56 : 6 : 38	97