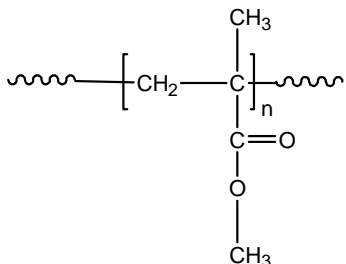


Sample Name: Poly(methyl methacrylate)
Atactic polymer (isotacticity >45%)

Sample #: P5451A-MMA

Structure:



Composition:

Mn x 10 ³	PDI
22.0	3.5
Syndio : Hetero : Iso	29 : 25 : 46
T _g	75°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:

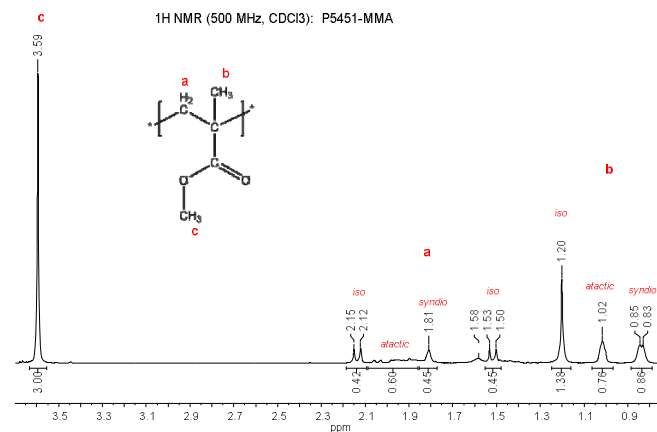
Tacticity of the polymer was determined by ¹H NMR. The molecular weight and polydispersity index (PDI) were obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns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

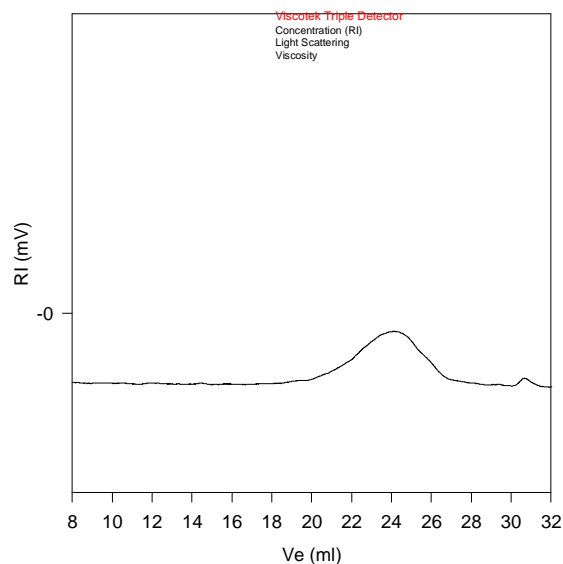
Solubility:

The polymer is soluble in chloroform.

¹H NMR spectrum of PMMA:

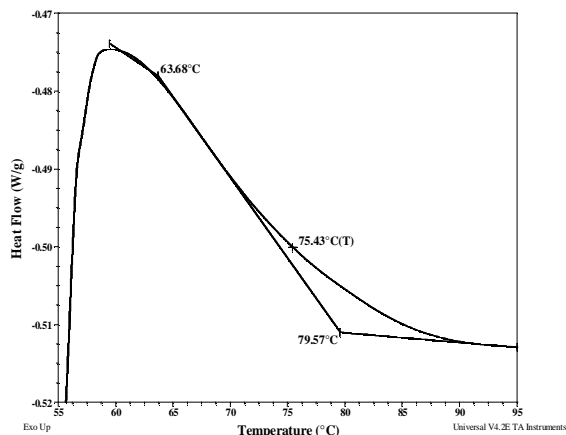


SEC elugram of PMMA homopolymer:
P5451A-MMA



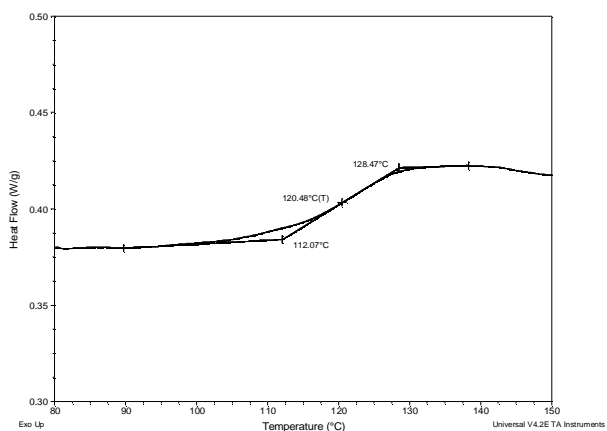
Size Exclusion Chromatography of isotactic poly(methyl methacrylate):
 — M_n = 22,000, M_w = 77,000, M_w/M_n = 3.5

DSC thermogram of the polymer P5451A-MMA:

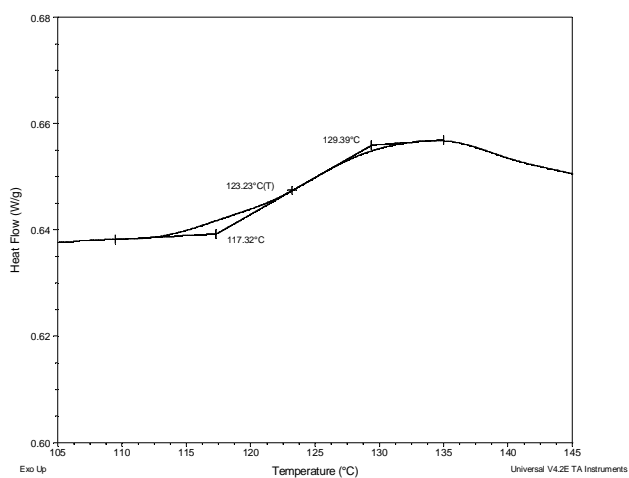


Thermograms of PMMA:

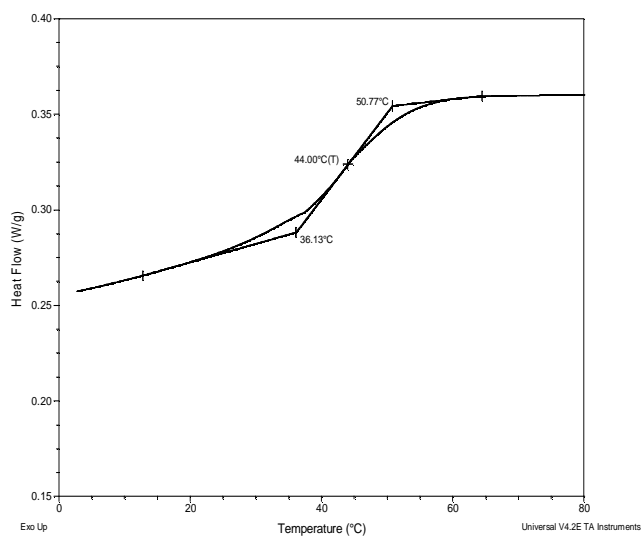
(a) syndiotactic >79%



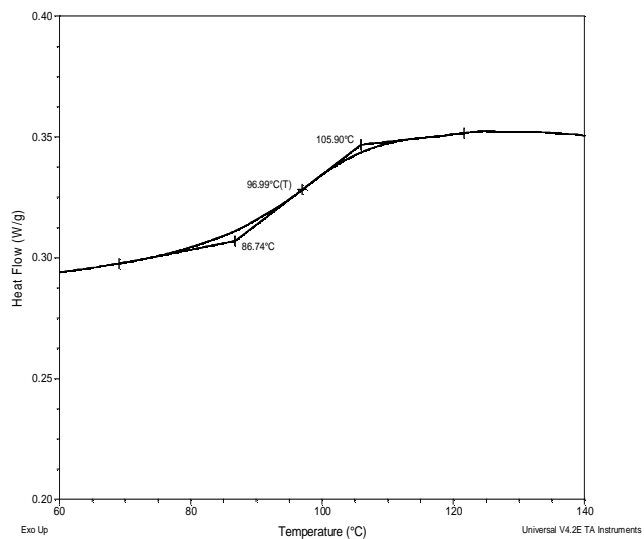
(b) syndiotactic >85%



(c) isotactic >97%



(d) atactic



Summary of DSC results for 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