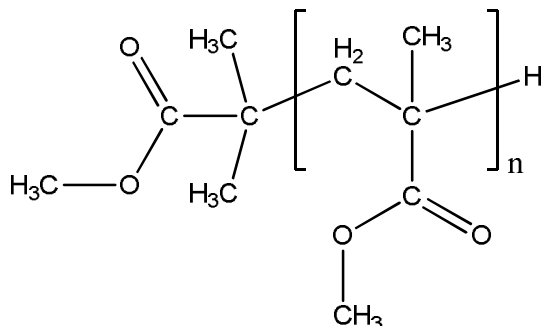


Sample Name: Poly (methyl methacrylate)

Different microstructure

Sample #: P19836-MMA

Structure:



Composition:

$M_n \times 10^3$ (g/mol)	M_w/M_n
1.2	1.3

Syndio- : Hetero- : Iso-tactic	T_g
53 : 43 : 4	64 °C

Synthesis procedure:

Poly(methyl methacrylate) was synthesized by GTP method using MMA monomer and THF as a solvent.

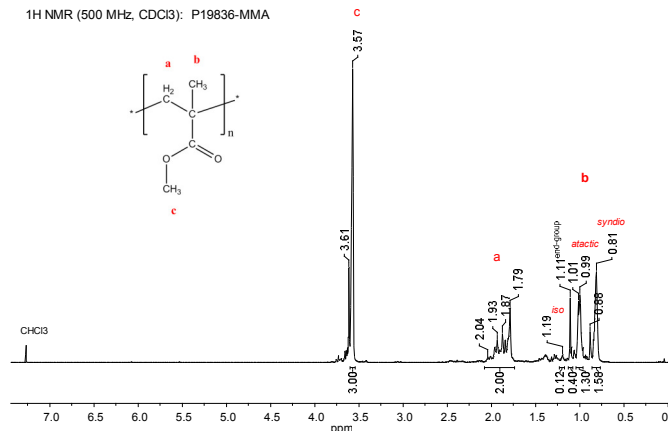
Characterization:

Tacticity of the polymer was calculated from ^1H NMR data. The molecular weight and polydispersity index (M_w/M_n) 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 was performed on TA Instruments Q100 differential scanning calorimeter (DSC) under a nitrogen atmosphere. The glass transition temperature (T_g) of the polymer was measured at a scan rate of 10°C/min shortly after creating thermal history of the sample.

Solubility:

The polymer is soluble in THF, chloroform.

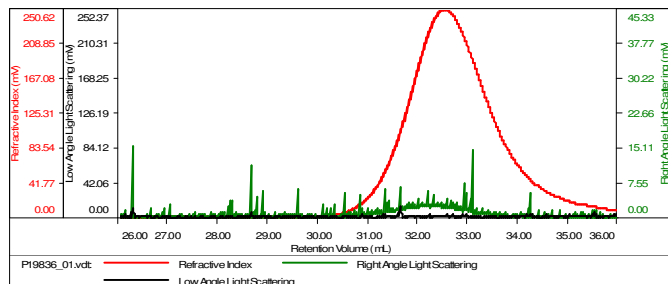
^1H NMR spectrum of PMMA:



SEC elugram of the polymer:

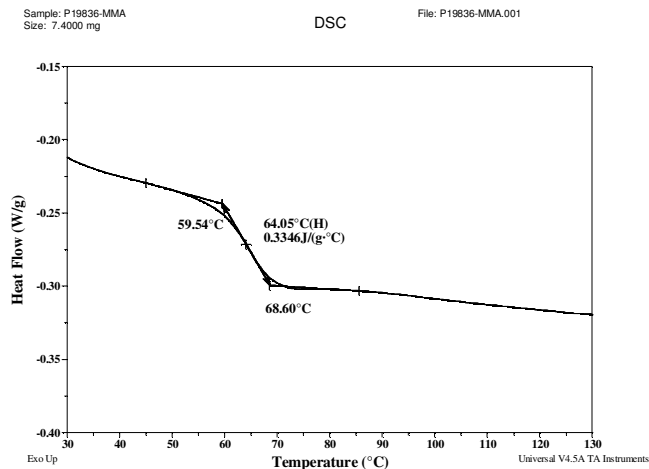
Sample ID: P19836-MMA

Concentration (mg/mL)	14.1089
Sample dn/dc (mL/g)	0.0840
Method File	PS80K-April-18-2016-0001.vcm
Column Set	3x PL 1113-6300
Solvent	THF



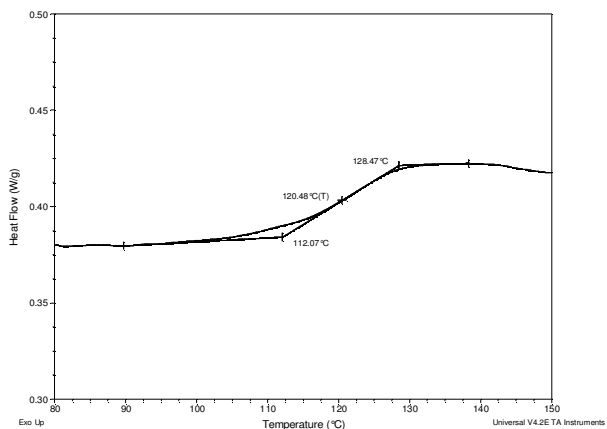
Sample	Mn (Da)	Mw (Da)	Mw/Mn	IV (dL/g)	Rh (nm)	Ret Vol (mL)
P19836_01.vcl	1,244	1,587	1.276	0.0607	1.38	32.530

DSC thermogram of the polymer:

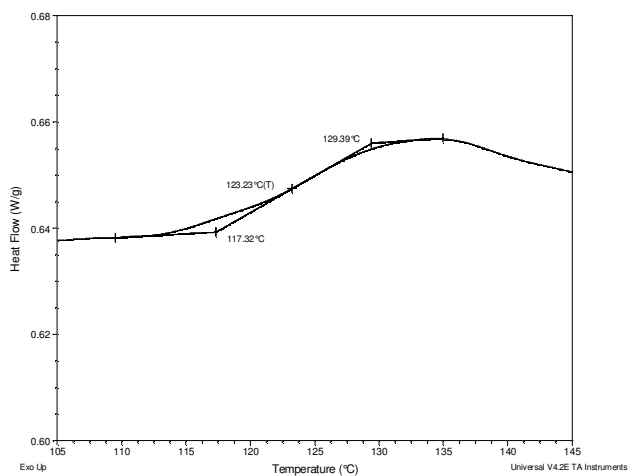


Reference thermograms of PMMA:

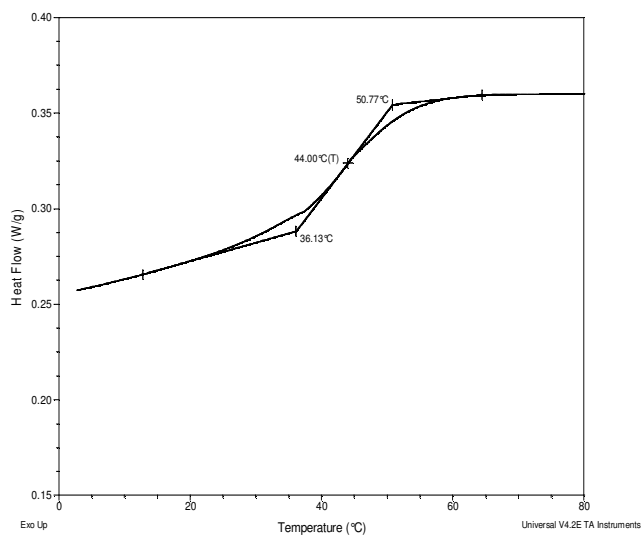
(a) syndiotactic >79%



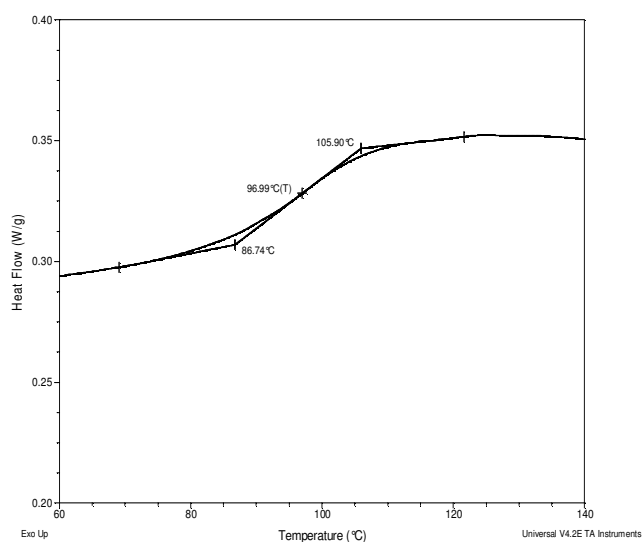
(b) syndiotactic >85%



(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°