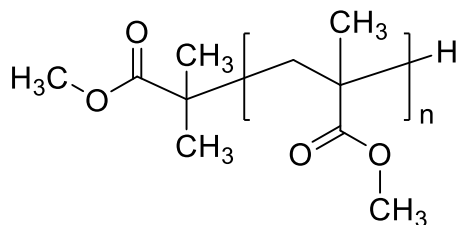


Sample Name: Poly (methyl methacrylate)

Different microstructure

Sample #: P19839-MMA

Structure:



Composition:

$M_n \times 10^3$ (g/mol)	M_w/M_n
12.0	1.02

Tacticity	Glass transition temperature
syndio : hetero : iso = 56 : 39 : 5	$T_g = 98^\circ\text{C}$

Synthesis procedure:

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

Characterization:

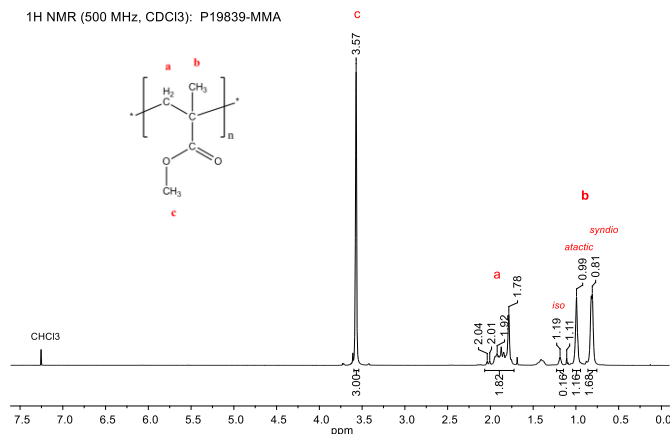
Tacticity of the polymer was calculated from ^1H NMR data. The molecular weight and polydispersity index (M_w/M_n) were obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on Agilent Technologies 1260 Infinity II GPC/SEC system equipped with triple detector (refractive index, viscometer, and light scattering).

Thermal analysis was performed on TA Instruments Q100 differential scanning calorimeter (DSC) under a nitrogen atmosphere. The glass transition temperature of the polymer was measured at a scan rate of $10^\circ\text{C}/\text{min}$ shortly after creating thermal history of the sample.

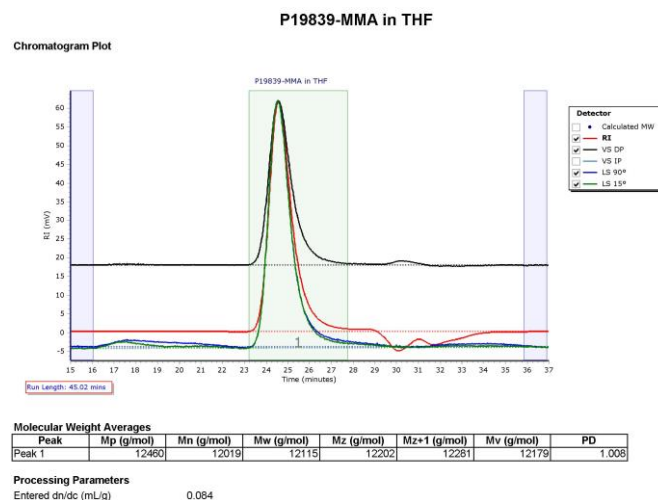
Solubility:

The polymer is soluble in THF, DMF, chloroform.

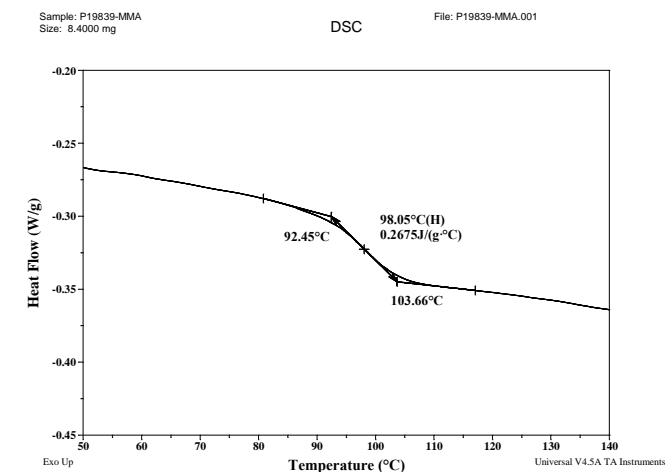
^1H NMR spectrum of PMMA:



SEC elugram of the polymer:

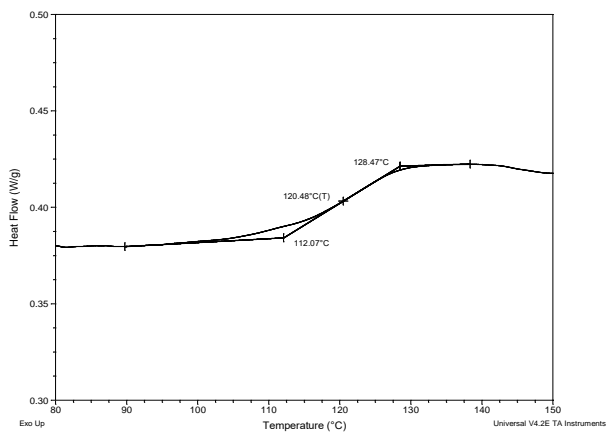


DSC thermogram of the polymer:

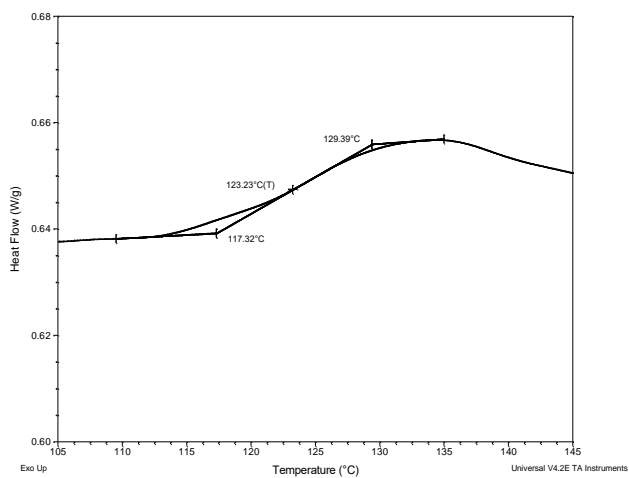


Reference thermograms of PMMA:

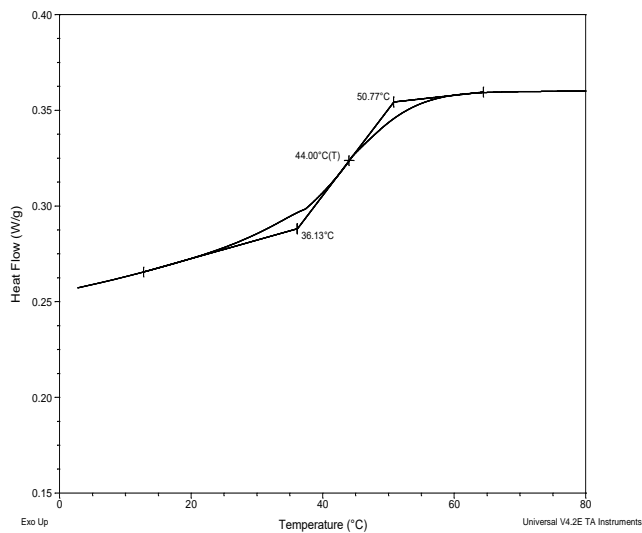
(a) syndiotactic >79%



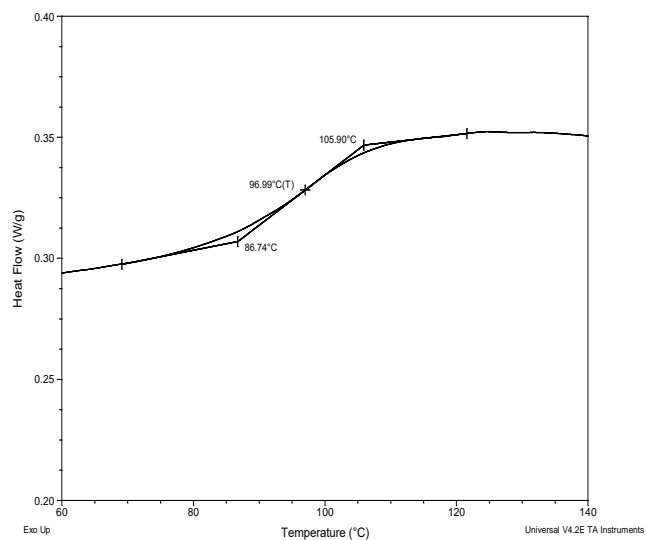
(b) syndiotactic >85%



(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°