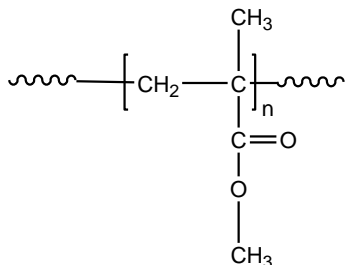


Sample Name: Poly (methyl methacrylate)

*Atactic polymer*

Sample #: P19395B-MMA

**Structure:**



**Composition:**

Mn x 10 <sup>3</sup>	PDI
164.5	1.9
Syndio : Hetero : Iso	40 : 54 : 6

**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:**

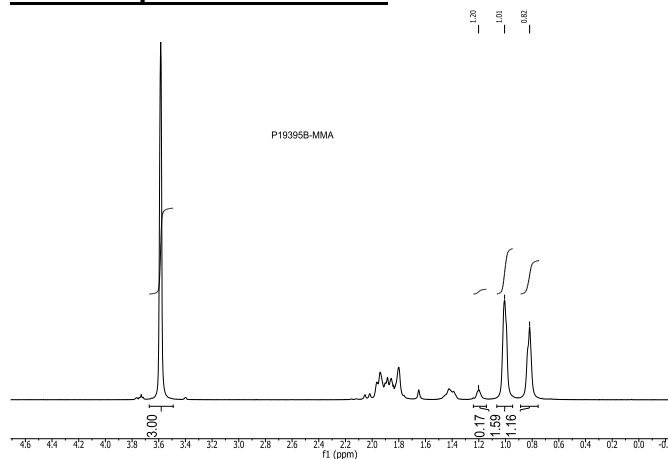
Tacticity of the polymer was determined by <sup>1</sup>H NMR. The molecular weight and polydispersity index (PDI) were obtained by size exclusion chromatography (SEC) in DMF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors.

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<sub>g</sub>) of the sample has been considered.

**Solubility:**

The polymer is soluble in chloroform, THF and DMF.

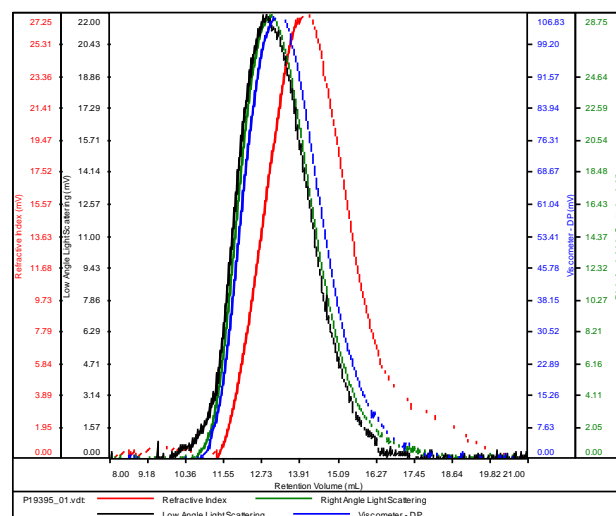
**<sup>1</sup>H NMR spectrum of PMMA:**



**SEC elugram of PMMA homopolymer:**

P19395B-MMA

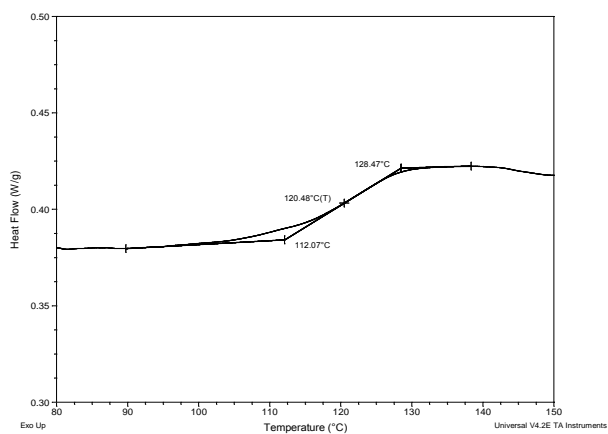
Conc	5.1871
dn/dc	0.0650
Solvent	DMF w 0.023M LiBr
Flow Rate	0.7000
Method	PS100k_2017-Oct11-0000.vcm



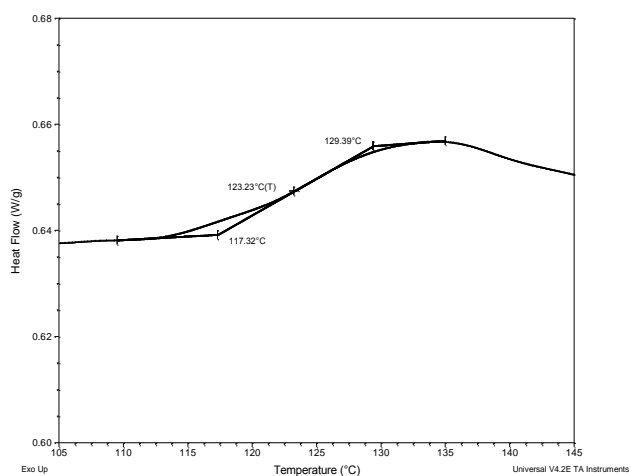
Sample	Mn	Mw	Mp	Mw/Mn	IV
P19395_01.vdt	164,638	307,231	231,453	1.866	0.6597

## DSC Thermograms of PMMA:

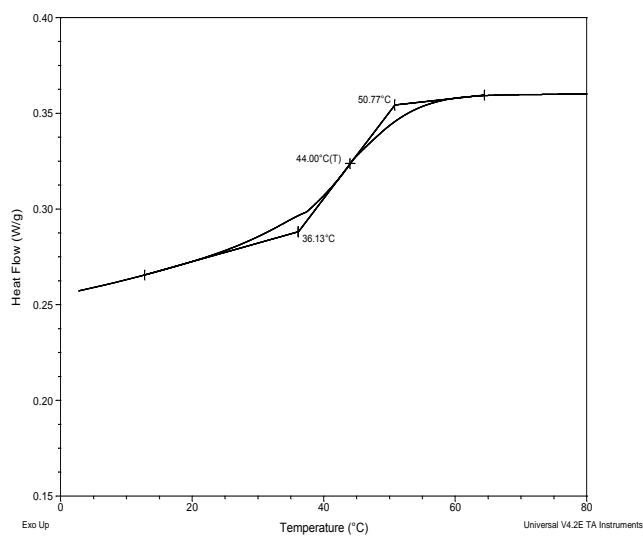
**(a) syndiotactic >79%**



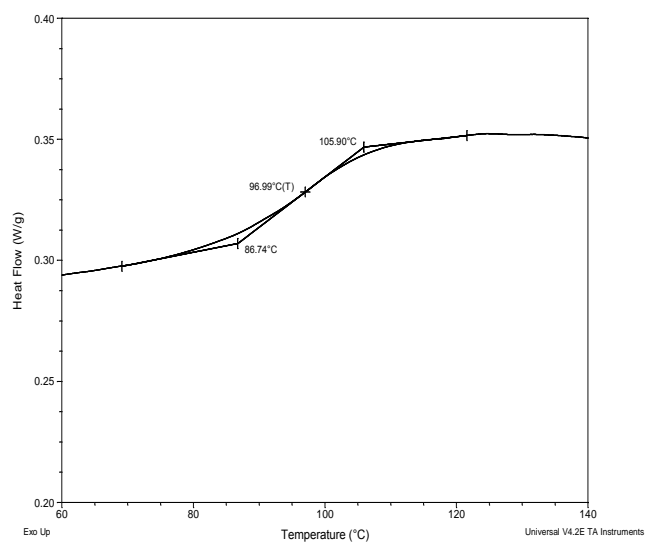
**(b) syndiotactic >85%**



**(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<sub>g</sub> (°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