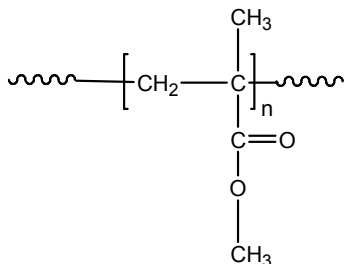


Sample Name: **Poly (methyl methacrylate)**  
*Atactic polymer*

Sample #: **P19388-MMA**

**Structure:**



**Composition:**

Mn x 10 <sup>3</sup>	PDI
334.0	2.0
Syndio : Hetero : Iso	34:61:5
T <sub>g</sub>	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:**

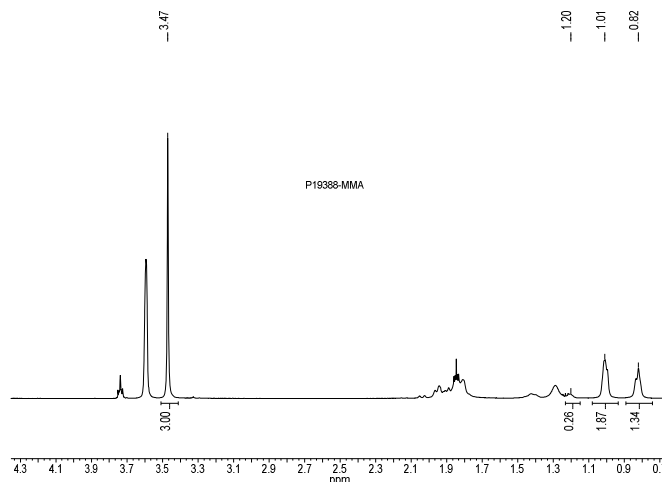
Tacticity of the polymer was determined by <sup>1</sup>H NMR. The molecular weight and polydispersity index (PDI) were obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three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

**Solubility:**

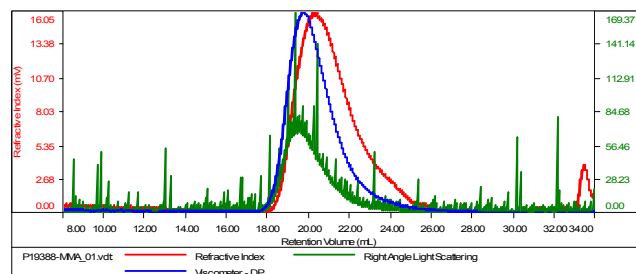
The polymer is soluble in chloroform.

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



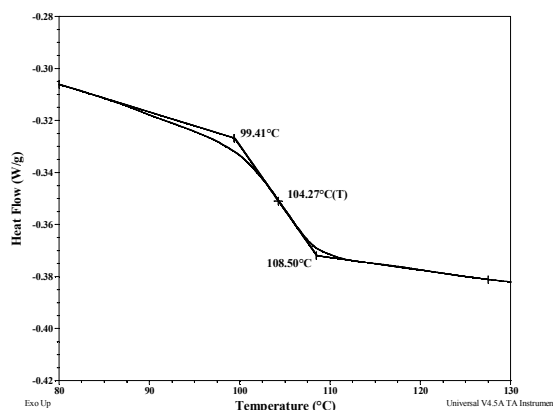
**SEC elugram of PMMA homopolymer:**  
**Sample ID: P19388-MMA**

Concentration (mg/mL)	0.5585
Sample chVdc (mL/g)	0.0840
Method File	PS80K-June30-2015-0000.vcm
Column Set	3xPL 1113-6300
Solvent	THF



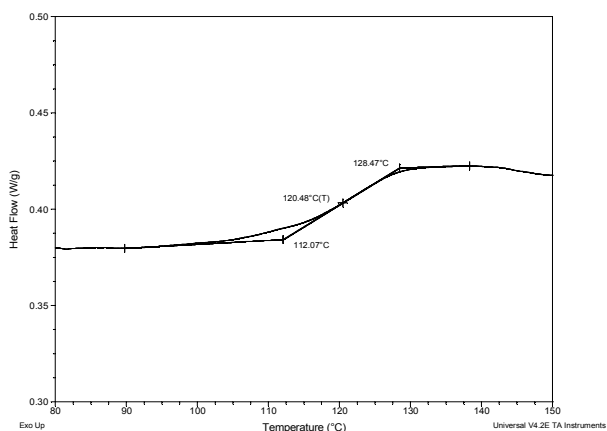
Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P19388-MMA_01.vdt	333,928	677,889	652,546	2.030	4.8205

**DSC thermogram of the polymer**

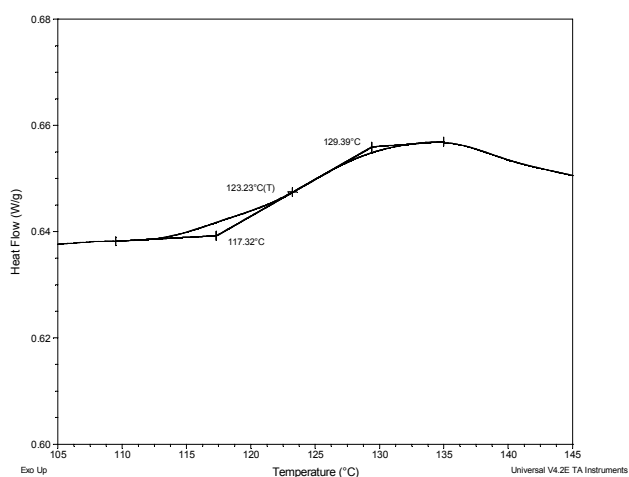


## Thermograms of PMMA:

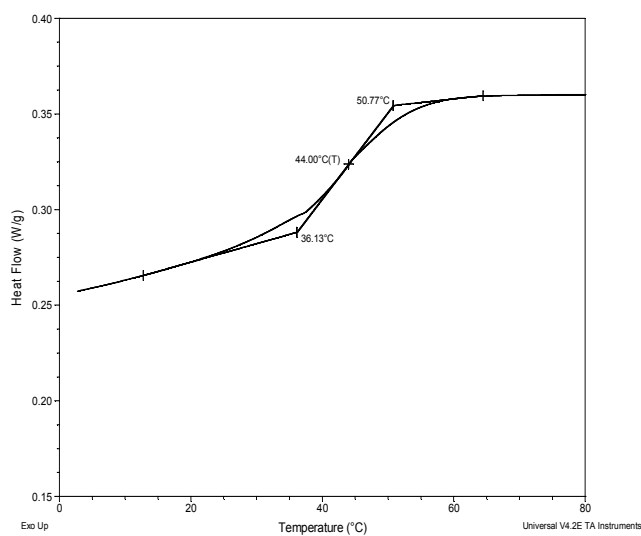
**(a) syndiotactic >79%**



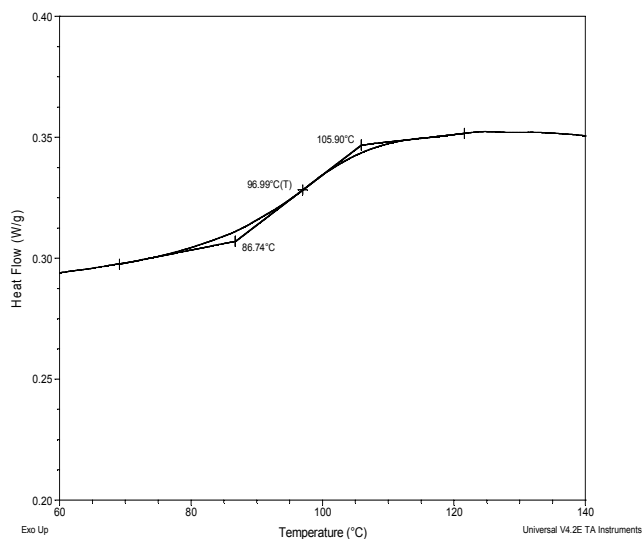
**(b) syndiotactic >85%**



**(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