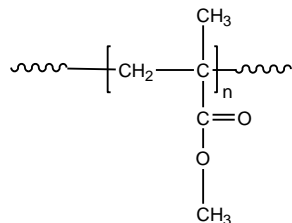


**Sample Name:** Poly(methyl methacrylate)  
*With different percentage of microstructures*

**Sample #:** P5443-MMA (iso rich)

**Structure:**



**Composition:**

$M_n \times 10^3$	PDI
297.0	1.5
Iso: Hetero: syndio	89:10:1
$T_g$ ( $^{\circ}\text{C}$ )	63

### 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:

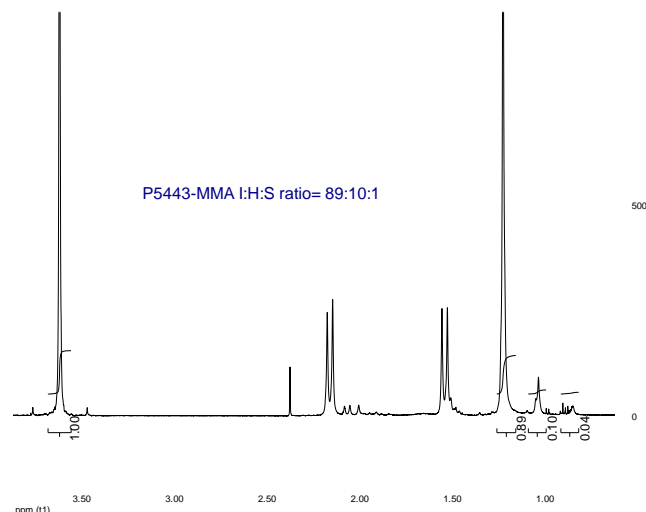
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple detectors obtained from Viscotek Co.

Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of  $10^{\circ}\text{C}/\text{min}$ . The inflection glass transition temperature ( $T_g$ ) of the sample has been considered.

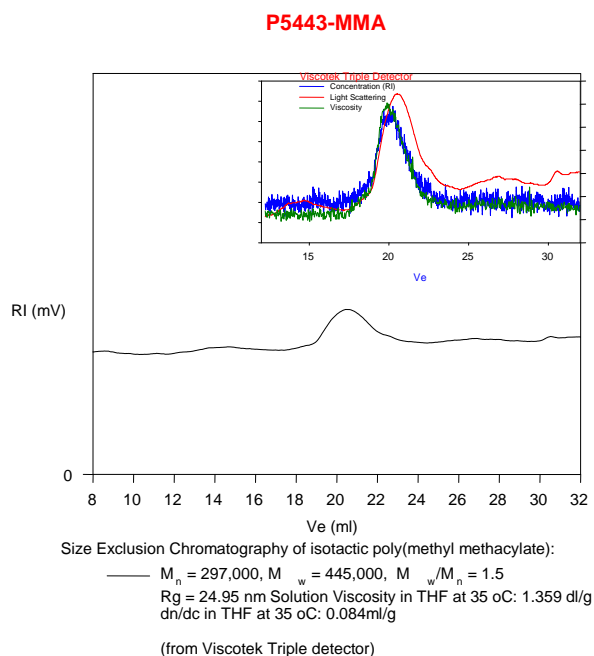
### Solubility:

The polymer is soluble in chloroform

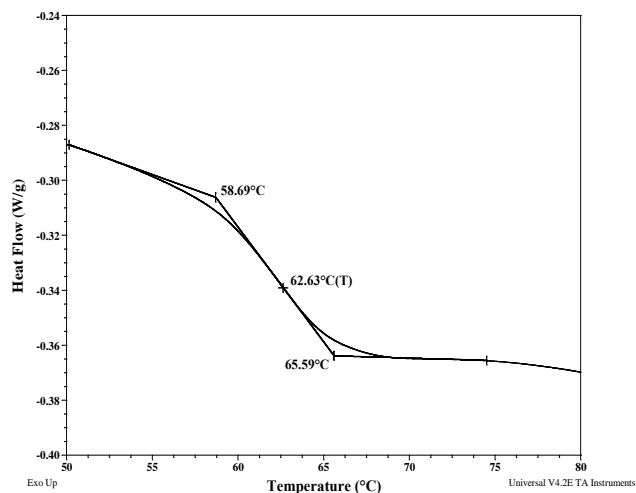
### $^1\text{H}$ NMR for P5443-MMA:



### SEC for the polymer:



### DSC thermogram for the polymer:

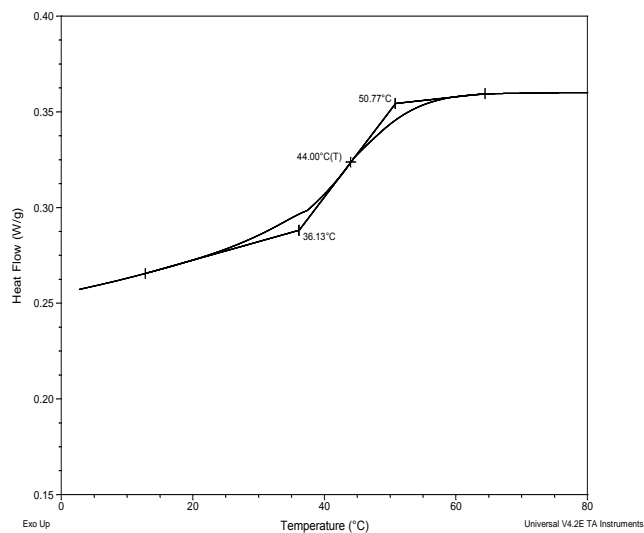


## Thermograms of PMMA

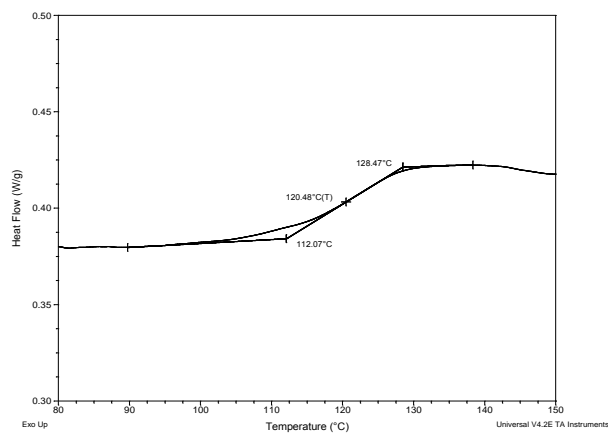
(a) Syndiotactic content >79%; (b). Syndiotactic content >85%; (c). Isotactic >97%; (d). Atactic

Type of microstructure	Microstructure ratio% Syn:Iso:Het tacticity	T <sub>g</sub> (°C)
Syndiotactic content >79%	79: 19: 2	120
Syndiotactic content >85%	86: 0 : 14	123
Isotactic (iso content>97%)	0: 97 :3	44
Atactic	56: 6 :38	97

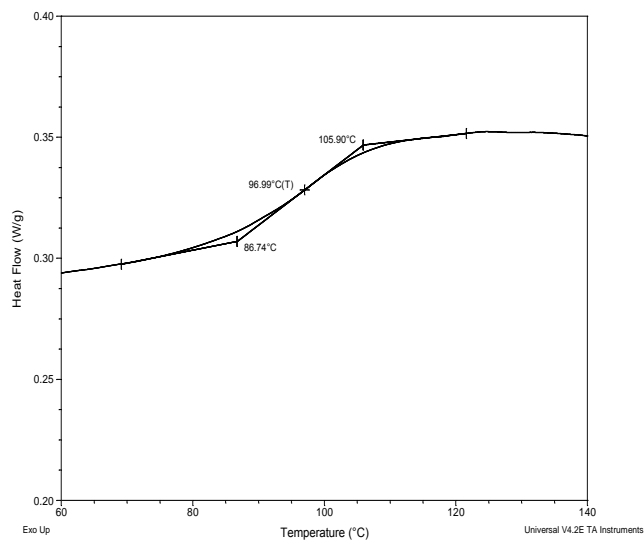
(c)



(a).



(d)



(b)

