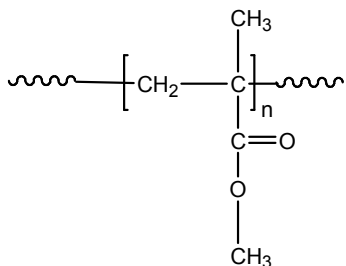


Sample Name: Poly (methyl methacrylate)
Atactic polymer

Sample #: P40544-MMA

Structure:



Composition:

| | |
|-------------------------|------|
| $\text{Mn} \times 10^3$ | PDI |
| 27.0 | 1.20 |

| | |
|-----------------------|-------------|
| Syndio : Hetero : Iso | 38 : 57 : 5 |
| T_g | 104°C |

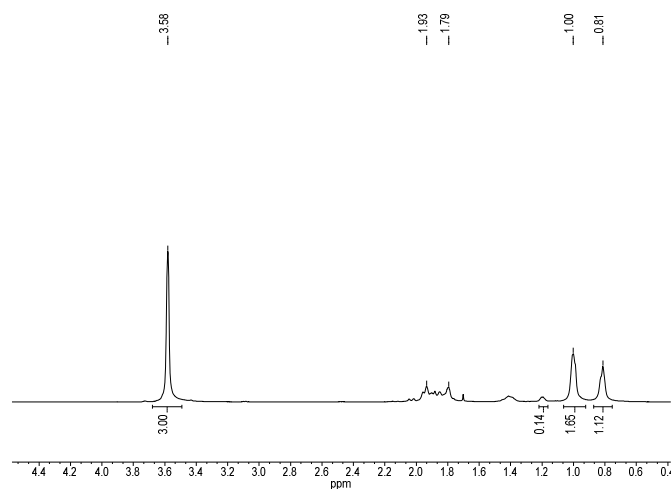
Synthesis Procedure:

The polymer was synthesized by anionic polymerization.

Characterization:

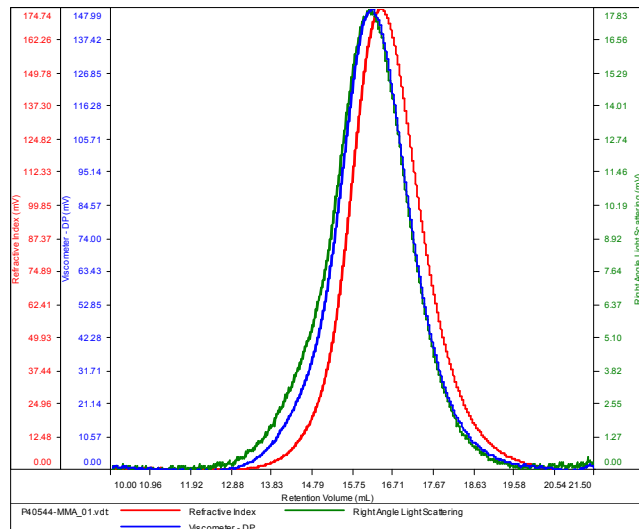
The product was characterized by size exclusion chromatography (SEC) and ^1H NMR.

^1H NMR spectrum of PMMA:



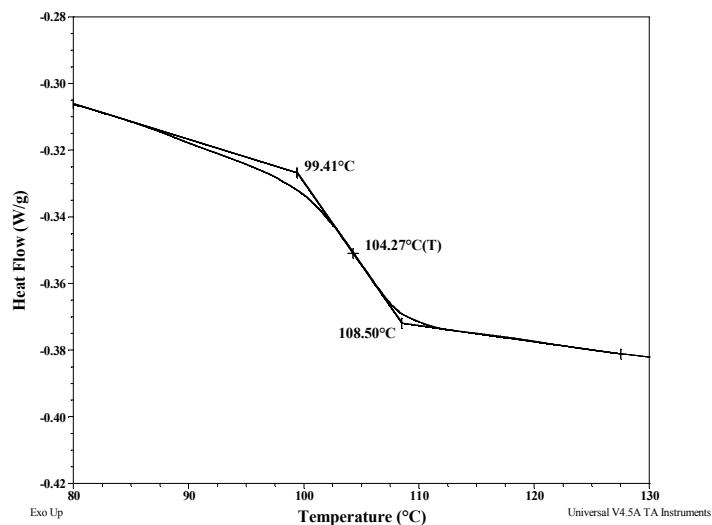
SEC elugram of PMMA homopolymer:
P40544-MMA

| | |
|-----------|--------------------------|
| Conc | 34.8404 |
| dn/dc | 0.0650 |
| Solvent | DMF w 0.023M LiBr |
| Flow Rate | 0.7000 |
| Method | PS80k-March2017-0002.vcm |



| Sample | Mn | Mw | Mp | Mw/Mn | IV |
|-------------------|--------|--------|--------|-------|--------|
| P40544-MMA_01.vdt | 26,942 | 32,301 | 28,416 | 1.199 | 0.1016 |

DSC thermogram of the polymer

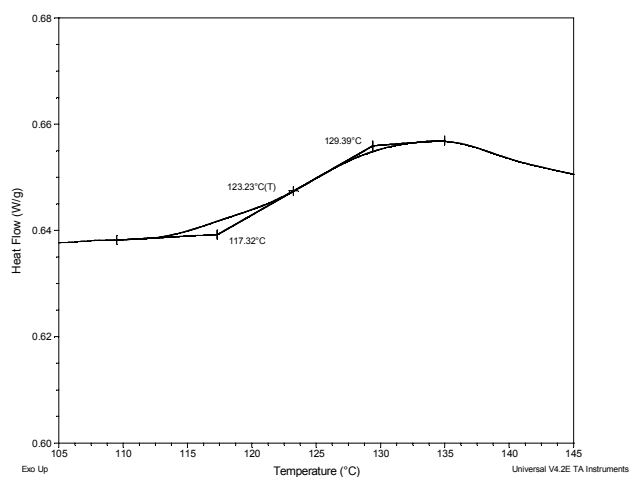


Thermograms of PMMA:

(a) syndiotactic >79%



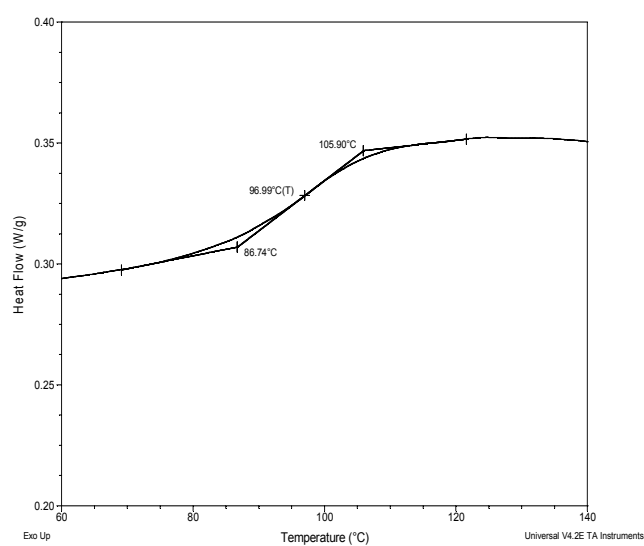
(b) syndiotactic >85%



(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_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 |