

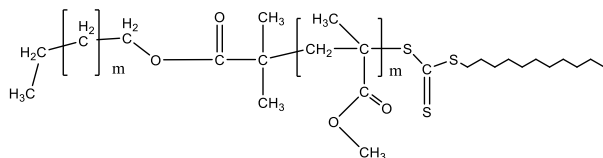
Sample Name:

Poly(methylene-*block*-methyl methacrylate)

Synonym: *Poly (ethylene-*block*-methyl methacrylate)*

Sample #: **P42243A-M-MMA**

Structure:



Composition:

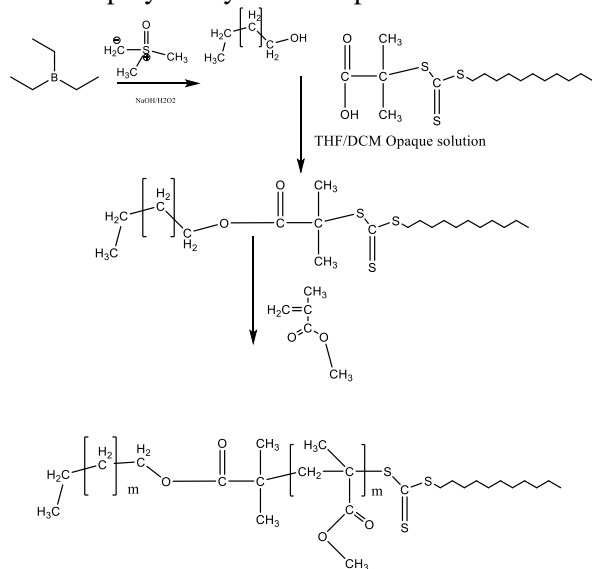
| | |
|---|-----------|
| $M_n \times 10^3$ (g/mol) [M- <i>b</i> -MMA] | M_w/M_n |
| 0.4- <i>b</i> -3.0 | 1.10 |

Thermal properties:

| | |
|------------------------|--------|
| Melting point, T_m : | 104 °C |
|------------------------|--------|

Synthesis Procedure:

Scheme of polymer synthesis is presented below:



Purification:

The obtained polymer was stirred in hot THF and let it settle down overnight. The soluble fraction was injected to SEC to check any presence of unreacted PMMA. We were unable to detect any signal in SEC in THF.

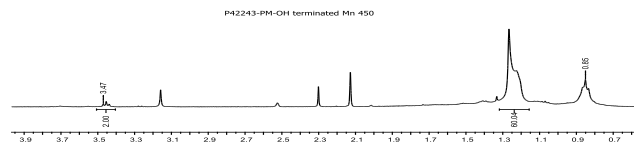
Characterization:

The product was analyzed using proton NMR, size exclusion chromatography (SEC), and DSC methods.

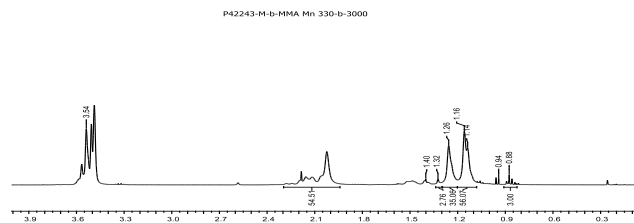
Solubility:

Polymer is soluble in hot toluene but becomes opaque once solution is cooled down to room temperature.

^1H NMR spectrum of the 1st block:

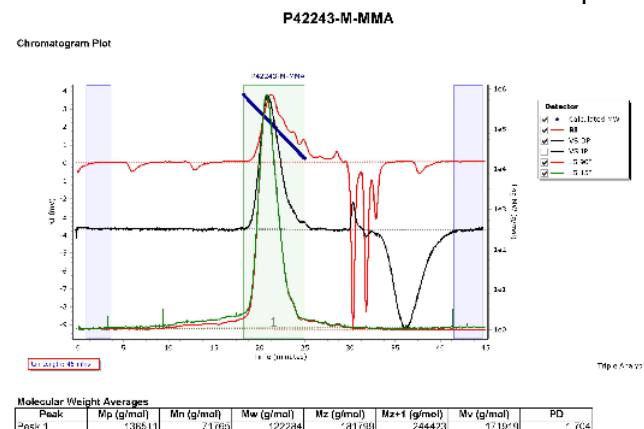


^1H NMR spectrum of the diblock copolymer in chlorobenzene- d_5 :

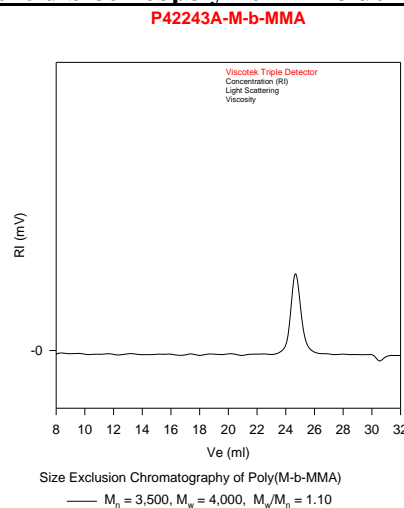


SEC elugram of the diblock copolymer in THF:

Since polymer is soluble in THF, SEC was checked in THF at 35°C. The SEC profile shows micellization and molecular weight of the polymer was found much higher than expected.



SEC of the diblock copolymer in Toluene at 60 °C:



DSC thermogram of the diblock polymer (2nd heating scan, 10°C/min):

