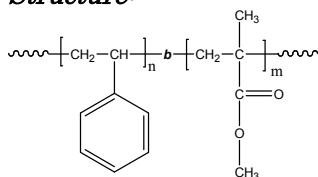


Sample Name: Poly(styrene-b-methyl methacrylate)
(polymethylmethacrylate rich in syndiotactic contents > 78%)

Sample #: P10500-SMMA

Structure:



Composition:

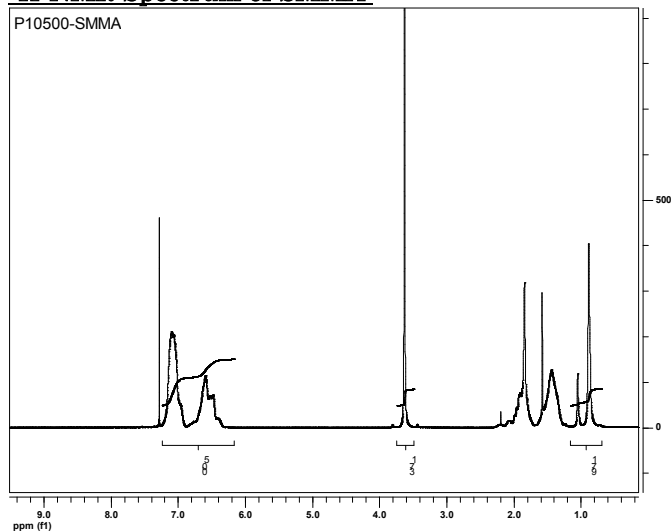
| Mn x 10 ³ S-b-MMA | PDI |
|----------------------------------|--|
| 722.0-b-400.0 | 1.16 |
| T _g for PS block: 107 | T _g for PMMA block: 130 oC |
| dn/dc in THF at 35 oC | 0.127 |

Synthesis Procedure:

By anionic process: For further details please see our published articles.¹⁻⁵

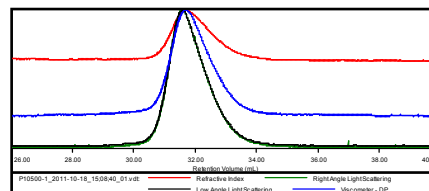
Characterization: Polymer analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area of the poly(methyl methacrylate) protons (eg. -OCH₃ at 3.6ppm) with of aromatic protons of polystyrene at 6.3-7.2 ppm. Copolymer PDI is determined by SEC. 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_g) of the sample has been considered.

¹H-NMR Spectrum of SMMA:

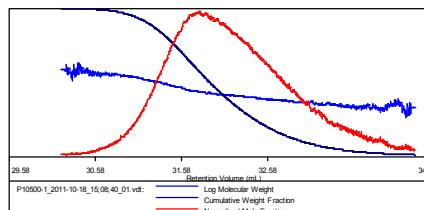


Sample ID: P10500-1

| | |
|-----------------------|--------------------|
| Concentration (mg/mL) | 0.9200 |
| Sample dn/dc (mL/g) | 0.1510 |
| Method File | PS80K-Oct-0000.vcm |
| Column Set | 3x PL 1113-6300 |
| System | System 1 |

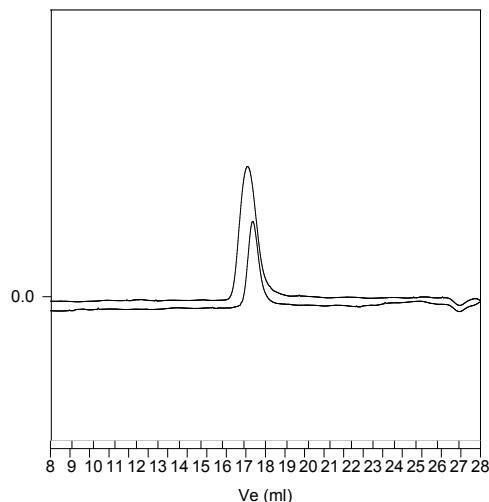


| Sample | Mn (Da) | Mw (Da) | Mp (Da) | Mw/Mn | IV (dL/g) |
|-------------------------------------|---------|---------|---------|-------|-----------|
| P10500-1_2011-10-18_15:08:40_01.vdt | 722,201 | 770,903 | 785,909 | 1.067 | 2.3473 |

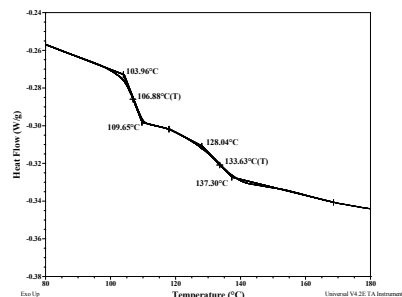


SEC of Sample -SMMA:

P10500-SMMA



Polystyrene, M_n=722,000, M_w=771,000 PI=1.06
 Block Copolymer:
 From composition from H NMR PS(722,000)-b-PMMA(400,000) Mw/Mn : 1.16



References for further information:

1. S. K. Varshney, R. Fayt, Ph. Teyssie, and J.P. Hautekeer US Patent 5,264,527 (1993)
2. Ph. Teyssie, Ph. Bayard, R. Jerome, S. K. Varshney, and J. S. Wang, *35th IUPAC International Union of Pure & Applied Chemistry International Symposium on Macromolecules* 1994, 67.
3. Ph. Teyssie, R. Fayt, J. P. Hautekeer, C. Jacobs, R. Jerome, L. Leemans and S. K. Varshney *Makromolekular Chemie, Macromol. Symp.*, 1990, 32,61-73.
4. S. K. Varshney, J. P. Hautekeer, R. Fayt, R. Jerome, and Ph.Teyssie *Macromolecules*, 1990, 23, 2618-2622.