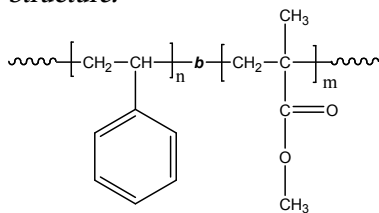


Sample Name: Poly(styrene-b-methyl methacrylate)
(polymethylmethacrylate rich in syndiotactic contents > 78%)

Sample #: P9119-SMMA

Structure:



Composition:

Mn x 10 ³ S-b-MMA	PDI
25.0-b-19.5	1.16

Synthesis Procedure:

Poly(styrene-b-methyl methacrylate) is prepared by living anionic polymerization in THF at -78°C using sec.BuLi initiator in the presence of LiCl. Polystyrene macroanions were end capped with a unit of diphenyl ethylene (DPE) before adding methylmethacrylate (MMA) monomer. For further details please see our published articles.¹⁻⁵:

Characterization:

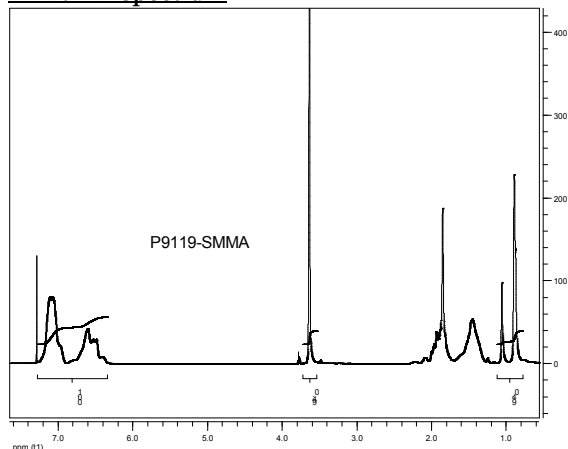
An aliquot of the anionic polystyrene block was terminated before addition of MMA and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area of the poly(methyl methacrylate) protons (eg. $-\text{OCH}_3$ at 3.6ppm) with the 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 $15^{\circ}\text{C}/\text{min}$. The inflection glass transition temperature (T_g) of the sample has been considered.

Solubility:

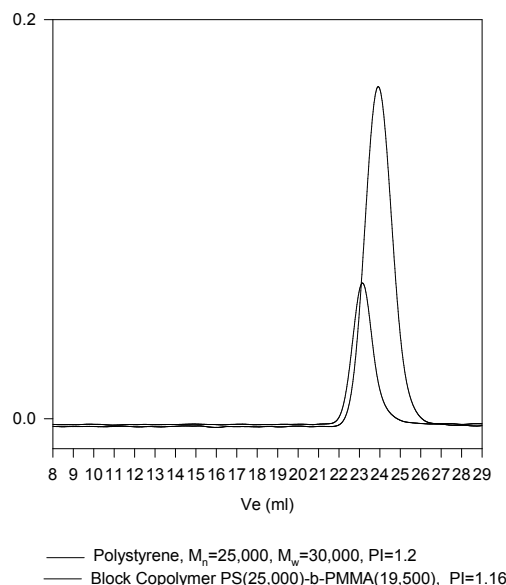
Poly(styrene-b-methyl methacrylate) is soluble in THF, toluene, dioxane and CHCl_3 . This polymer readily precipitates from methanol, ethanol, hexanes and water.

¹H-NMR Spectrum

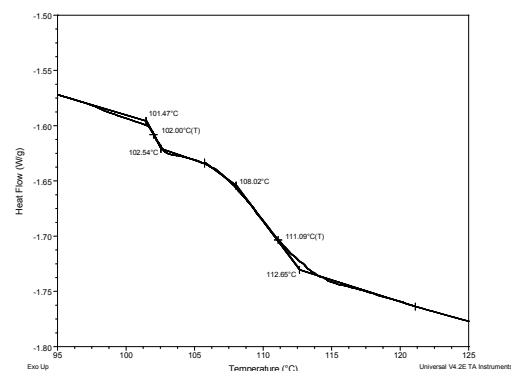


SEC of Sample SMMA:

P9119-SMMA



Thermogram of sample



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 *Makromolekul. Chemie, Macromol. Symp.*, 1990, 32,61-73.