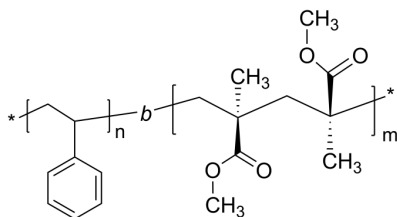


Sample Name: Poly(styrene-*b*-methyl methacrylate)
(PMMA block is > 80% syndiotactic)

Sample # P11421-SMMA

Structure:



Composition:

$M_n \times 10^3$ [S- <i>b</i> -MMA]	M_w/M_n
30.0- <i>b</i> -30.0	1.08

Synthesis Procedure:

Poly(styrene-*b*-methylmethacrylate) was prepared by living anionic polymerization in THF at -78°C using *sec*-BuLi initiator in presence of LiCl. Polystyrene macroanions were end-capped with a diphenyl ethylene (DPE) before adding methylmethacrylate (MMA) monomer. For more details, see our 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 (M_w/M_n). The final block copolymer composition was calculated from $^1\text{H-NMR}$ spectroscopy by comparing the integration of $-\text{OCH}_3$ protons assigned to poly(methyl methacrylate) at 3.6 ppm to the integration of aromatic protons of polystyrene at 6.3–7.2 ppm. Polydispersity index of the block copolymer was determined by SEC.

Solubility:

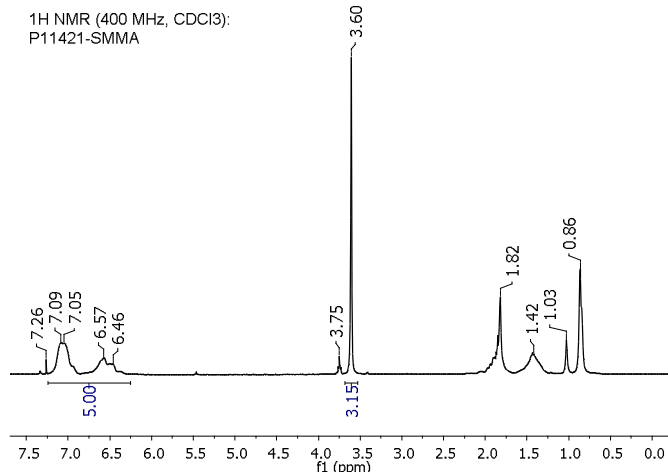
The polymer is soluble in THF, CHCl_3 , toluene, and dioxane. It precipitates from hexanes, methanol, and ethanol.

References:

1. S. K. Varshney, R. Fayt, Ph. Teyssie, J.P. Hautekeer. US Patent 5,264,527 (1993).
2. Ph. Teyssie, Ph. Bayard, R. Jerome, S. K. Varshney, 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, S. K. Varshney. Makromolekular Chemie, Macromol. Symp., 1990, 32, 61-73.

4. S. K. Varshney, J. P. Hautekeer, R. Fayt, R. Jerome, Ph. Teyssie. Macromolecules, 1990, 23, 2618-2622.
5. R. Jerome, R. Forte, S. K. Varshney, R. Fayt, Ph. Teyssie. "The Anionic Polymerization of Alkylacrylates: A Challenge" in the Recent Advances in Mechanistic and Synthetic Aspects of Polymerization: M. Fontanaille and A. Guyot Ed., NATO ASI Series C 215, 101 (1987), CA Vol. 108, 12, 094992.

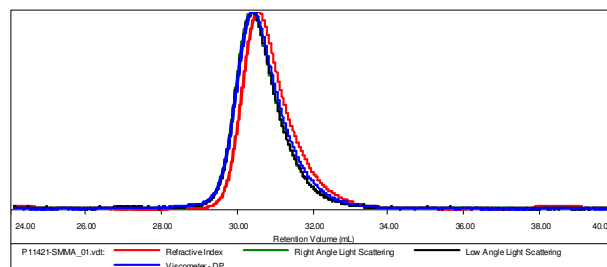
$^1\text{H-NMR}$ spectrum of the diblock copolymer:



SEC elugram of the diblock copolymer:

Sample ID: P11421-SMMA

Concentration (mg/mL)	3.4396
Sample dn/dc (mL/g)	0.1350
Method File	PS80K-Apr-2013-0000.vcm
Column Set	3x PL 1113-6300
System	System 1



Sample	M_n	M_w	M_p	M_w/M_n	IV
P11421-SMMA_01.vdt	60,565	65,670	65,782	1.084	0.4924

