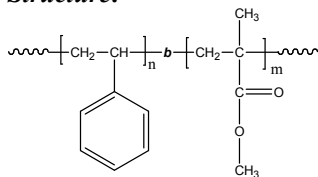Sample Name: **Poly(styrene-b-methyl methacrylate)**
 *(polymethylmethacrylate rich in syndiotactic contents > 78%)*
Sample #:  **P10434-SMMA**

*Structure:*



*Composition:*

| Mn x $10^3$ S-b-MMA | PDI |
|---|---|
| 1,200.0-b-150.0 | 1.3 |
| $T_g$ for PS block: 107 | $T_g$ for PMMA block: 130 °C |
| dn/dc in THF at 35 °C | 0.127 |

*Synthesis Procedure***:**
**By anionic process:**  For further details please see our published articles.[1-5]

*Characterization:* The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ${}^1$H-NMR spectroscopy by comparing the peak area of the poly(methyl methacrylate) protons (eg.–$OCH_3$ 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.
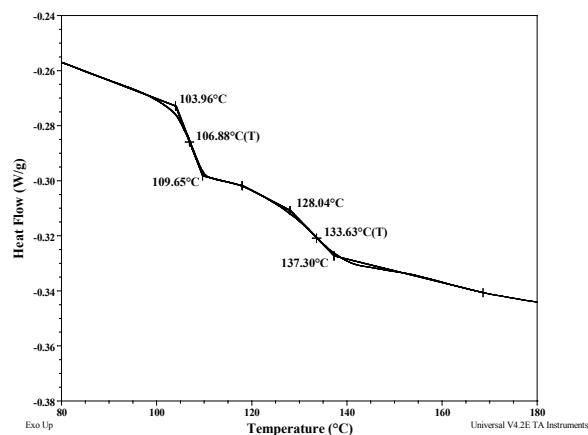
# ${}^1$H-NMR Spectrum of SMMA:
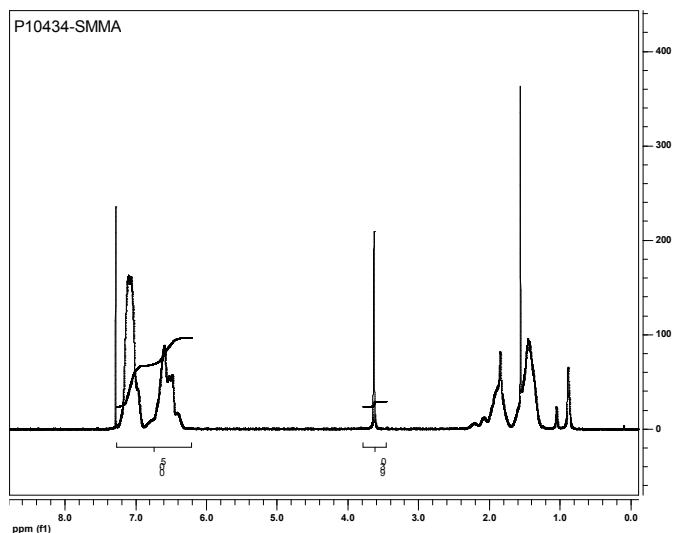


**SEC of Sample -SMMA:**

**P10434-SMMA**
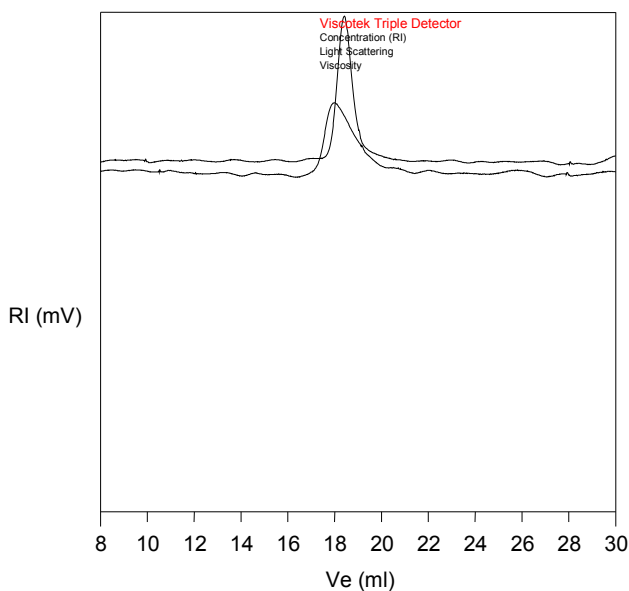


Size Exclusion Chromatography of Poly Styrene-b-MMA

——  PS block  $M_n$ = 1,200,000, $M_w$ = 1,330,000,  $M_w/M_n$ = 1.11
PS-b-MMA:  Mn = 1,200,000-b-150,000      PI: 1.3



*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.*