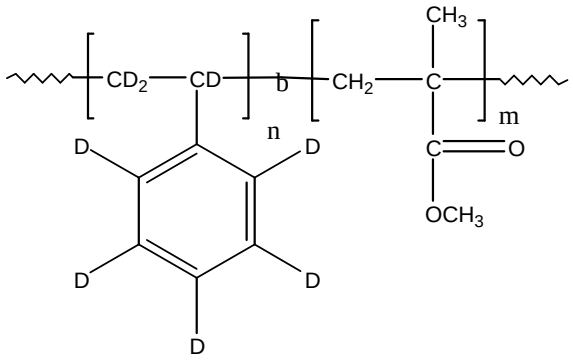
Sample Name:
Deuterated Polystyrene (d_8)-Methylmethacrylate (protonated)

Sample #: P374-dPSMMA

Structure:



Composition:

Mn x 10^3 (dPS-b-MMA)	PDI
104.7-b-4.4	1.05
T_g for PS block	106°C
T_g for MMA block	Not distinct

Synthesis Procedure:

Deuterated poly[styrene (D8)-b-methyl methacrylate] is prepared by living anionic polymerization in THF at –78°C using sec.BuLi initiator in the presence of LiCl. Deuterated Polystyrene macroanions were end capped with a unit of diphenyl ethylene (DPE) before adding methylmethacrylate (MMA) monomer. For further details please consult our publications.[1-5]

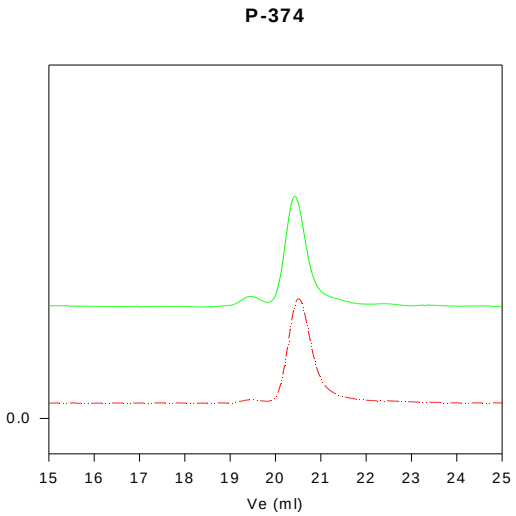
Characterization:

The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors from Viscotek Co. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used.

Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 15°C/min. The inflection glass transition temperature (T_g) of the sample has been considered.

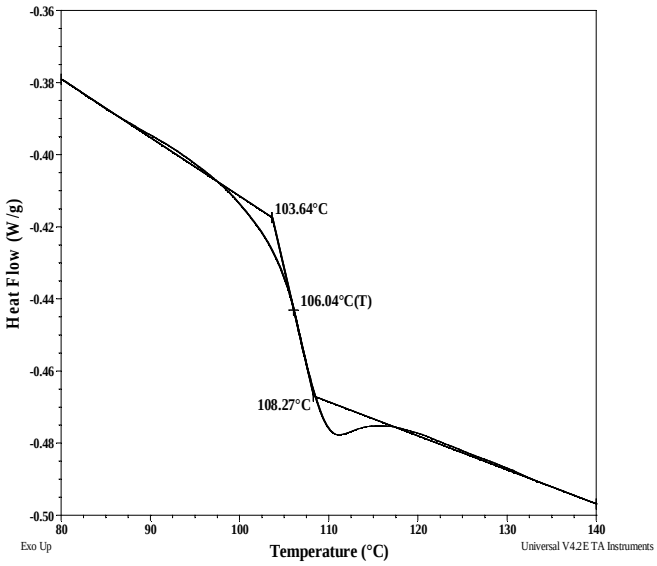
Solubility:
Deuterated polystyrene-d_8MMA is soluble in DMF, THF, toluene and $CHCl_3$. It precipitates from methanol, ethanol, water and hexanes.

SEC of the product:



Size exclusion chromatography of deuterated polystyrene-b-poly(methyl methacrylate)
Polystyrene, M_n=104700, M_w=110100, PI=1.05
Block Copolymer dPS(104700)-b-PMMA(4400), PI=1.05

Thermogram for the diblock polymer:



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.*
5. R. Jerome, R. Forte, S. K. Varshney, R. Fayt, and 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.*