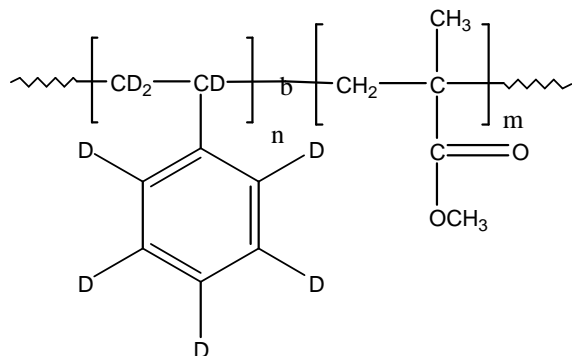


**Sample Name:**  
Deuterated Polystyrene (d<sub>8</sub>)-Methyl methacrylate (protonated)

**Sample #: P1726-dPSMMA**

**Structure:**



**Composition:**

Mn x 10 <sup>3</sup> (dPS-b-MMA)	PDI
12.0-b-8.0	1.07
T <sub>g</sub> for PS block	107°C
T <sub>g</sub> for MMA block	Not distinct

**Synthesis Procedure:**

Deuterated poly(styrene (D<sub>8</sub>)-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.<sup>1-5</sup>

**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.

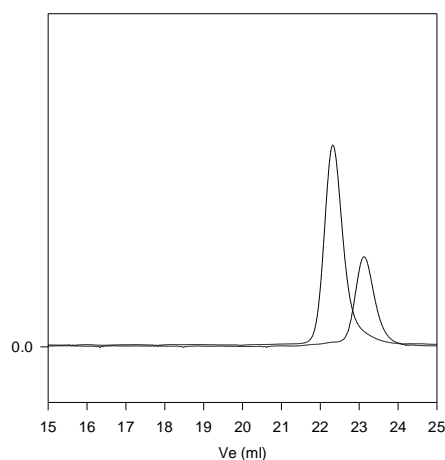
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 15°C/min. The inflection glass transition temperature (T<sub>g</sub>) of the sample has been considered.

**Solubility:**

Deuterated polystyrene-d<sub>8</sub>MMA is soluble in DMF, THF, toluene and CHCl<sub>3</sub>. It precipitates from methanol, ethanol, water and hexanes.

**SEC of the product:**

P1726-dPSMMA

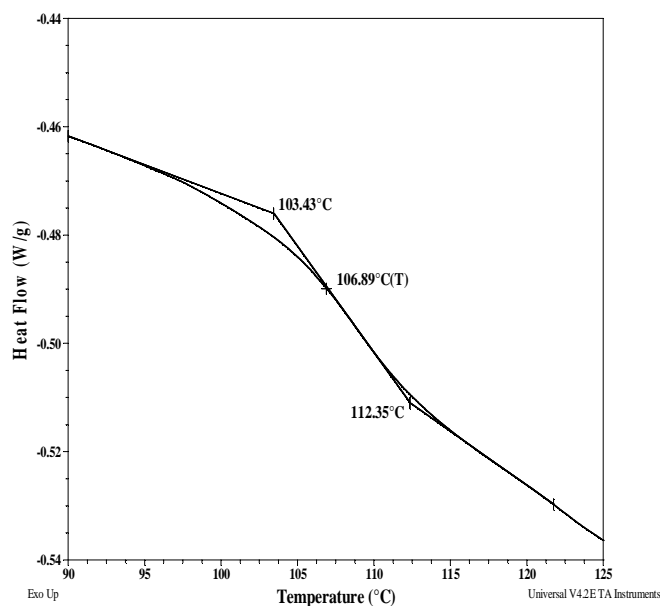


Size exclusion chromatography of deuterated polystyrene-b-poly(methyl methacrylate)

— Deuterated (d<sub>8</sub>)polystyrene, M<sub>n</sub>=12000, M<sub>w</sub>=11800, PI=1.07

— Block Copolymer dPS(12000)-b-PMMA(8000), PI=1.07

**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. Fontanille and A. Guyot Ed., NATO ASI Series C 215,101 (1987), CA Vol. 108, 12, 094992.