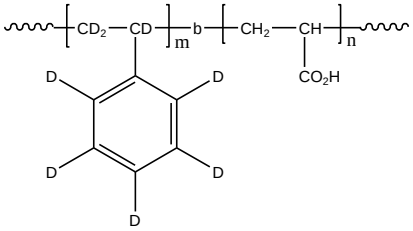
Sample Name:
Deuterated polystyrene (d_8)- polyacrylic acid (protonated)

Sample #: P6761-dPSAA

Structure:



Composition:

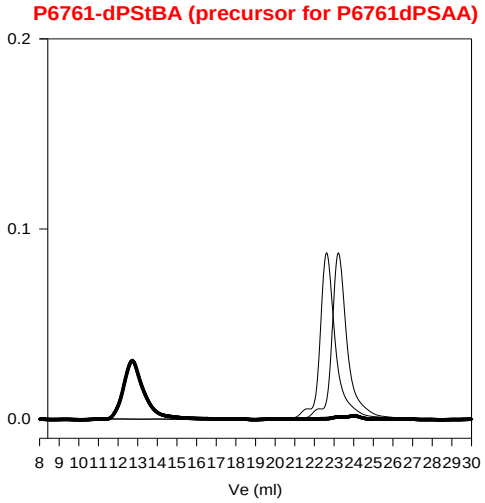
Mn x 10^3 (dPS-b-AA)	PDI
45.0-b-42.0	1.09
T_g for dPS block	104 ^{0}C
T_g for PAA block	156 ^{0}C

Synthesis Procedure:
Deuterated poly(styrene (D8)-b-t-butyl acrylate) is prepared by living anionic polymerization in THF at –78 ^{o}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 tert.butylacrylate (tBuA) monomer. For further details please see our published articles.[1-5] The t-butyl ester form was converted to acid form by hydrolysis in dioxane.

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.

Solubility:
Deuterated polystyrene-AA is soluble in DMF,THF and may solubilize in $CHCl_3$ dependent on the composition (with a few units of acrylic acid block). It precipitates from hexanes.

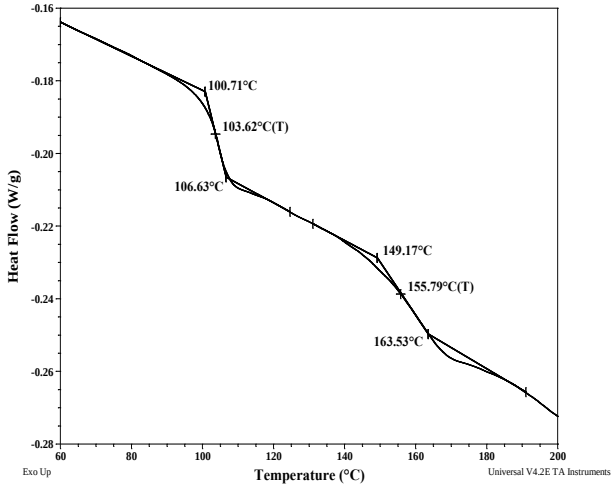
SEC of the sample:



Size exclusion chromatography of deuterated (d8) polystyrene-poly(t-butyl acrylate)

Deuterated Polystyrene, M_n=-45000, M_w=48,600, PI=1.08
Block Copolymer PdPS(45000)-b-PtBuA(75000), PI=1.09
After Hydrolysis of tert.butyl ester Mn 45000-b-42000 Mw/Mn 1.09
In THF the SEC profile shows the micellization

DSC thermogram for the 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.*