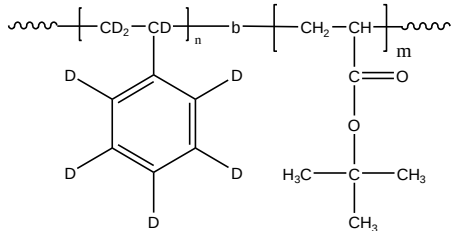
Sample Name:
Deuterated polystyrene (d_8)- poly tert.butylacrylate(protonated)

Sample #: P8181-dPStBuA

Structure:



Composition:

Mn x 10^3	PDI
72.0-b-40.0	1.10
T_g for dPS block	102°C
T_g for tBuA block	41°C

Synthesis Procedure:

Deuterated poly(styrene (D8)-b-t-butyl acrylate) 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 tert.butylacrylate (tBuA) monomer. For further details please see our published articles.[1-3.]

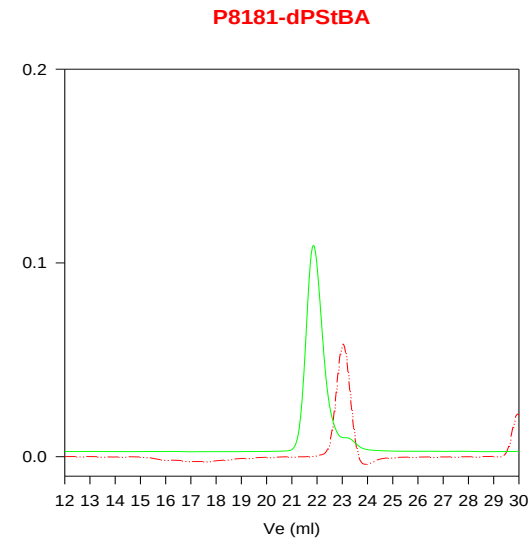
Characterization:

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
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min.The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:
Deuterated polystyrene-b-tert.butylacrylate is soluble in THF, dioxane. Toluene, benzene $CHCl_3$ It precipitates from methanol/water.

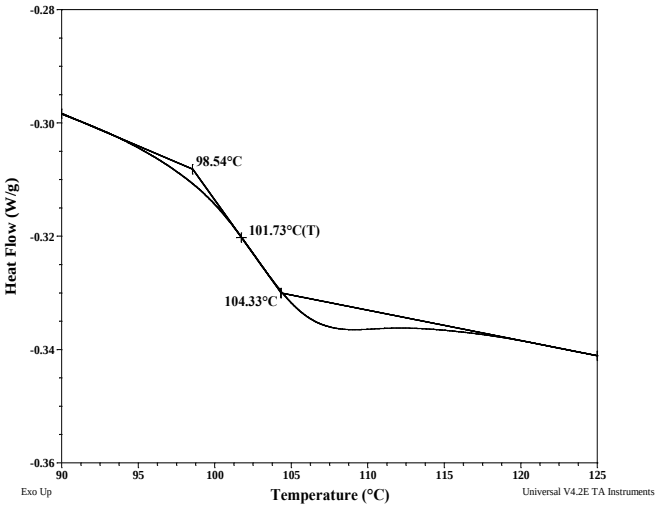
SEC of the product:



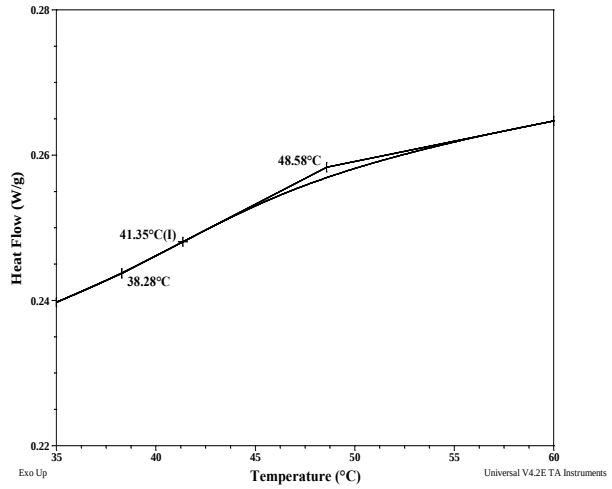
Size exclusion chromatography of deuterated (d8) polystyrene-poly(t-butyl acrylate

Deuterated Polystyrene, M_n=-72000, M_w=76500, PI=1.06
Block Copolymer PdSt(72000)-b-PtBuA(40000), PI=1.10

DSC thermogram for the PS block:



Thermogram for PtBuA block:



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