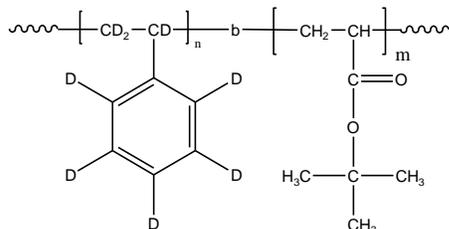


Sample Name:

Deuterated polystyrene (d₈)- poly
tert.butylacrylate(protonated)

Sample #: P8175-dPStBuA

Structure:



Composition:

Mn x 10 ³	PDI
27.0-b-9.0	1.07
T _g for dPS block	102°C
T _g for tBuA block	43°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.¹⁻⁵

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

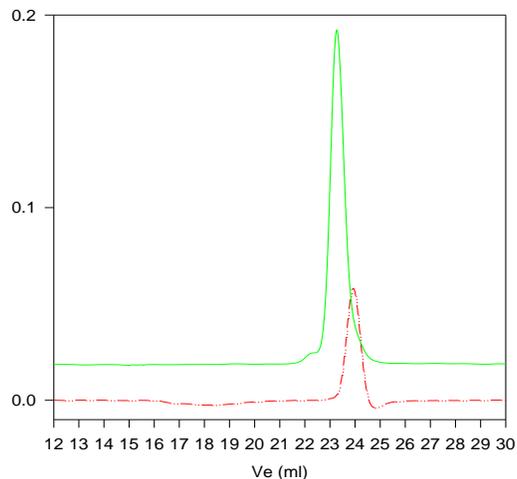
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

Deuterated polystyrene-b-tert.butylacrylate is soluble in THF, dioxane. Toluene, benzene CHCl₃ It precipitates from methanol/water.

SEC of the product:

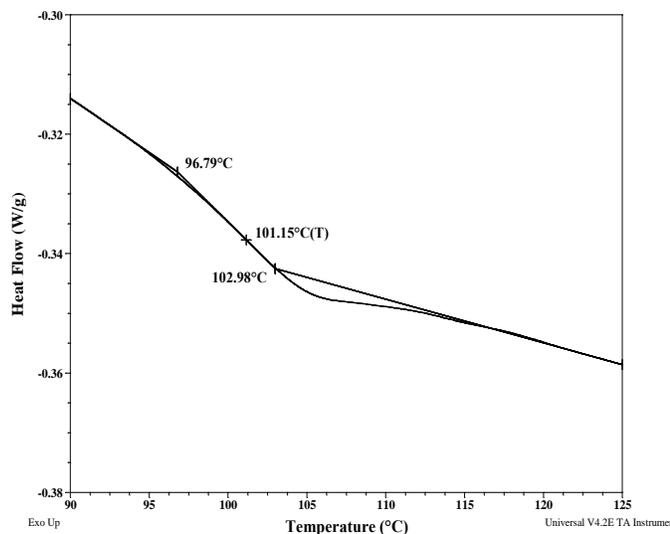
P8175-dPStBA



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

--- Deuterated Polystyrene, M_n=27000, M_w=28500, PI=1.06
— Block Copolymer PdSt(27000)-b-PtBuA(9000), PI=1.07

DSC thermogram for the sample:



Thermogram for PtBuA block:

