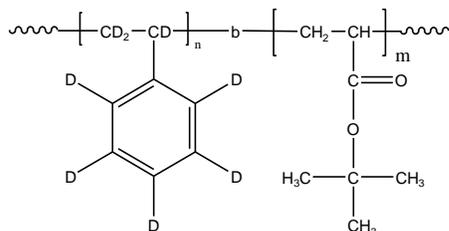


### Sample Name:

Deuterated polystyrene (d<sub>8</sub>)- poly tert.butylacrylate(protonated)

### Sample #: P8173-dPStBuA

#### Structure:



#### Composition:

Mn x 10 <sup>3</sup>	PDI
35.0-b-35.0	1.5
T <sub>g</sub> for dPS block	103°C
T <sub>g</sub> for tBuA block	42°C

#### Synthesis Procedure:

Deuterated poly(styrene (D<sub>8</sub>)-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.<sup>1-3</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

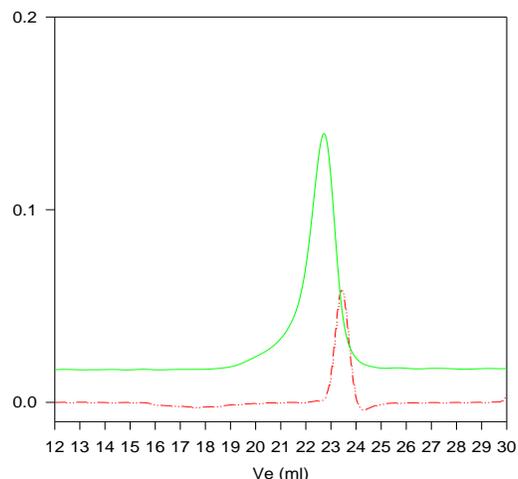
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T<sub>g</sub>).

#### Solubility:

Deuterated polystyrene-b-tert.butylacrylate is soluble in THF, dioxane. Toluene, benzene CHCl<sub>3</sub> It precipitates from methanol/water.

### SEC of the product:

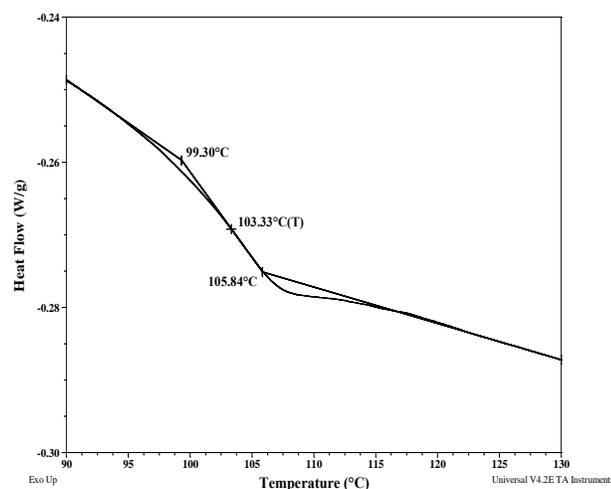
#### P8173-dPStBA



Size exclusion chromatography of deuterated (d<sub>8</sub>) polystyrene-poly(t-butyl acrylate)

- Deuterated Polystyrene, M<sub>n</sub>=-35000, M<sub>w</sub>=37000, PI=1.06
- Block Copolymer PdSt(35000)-b-PtBuA(35000), PI=1.5

### DSC thermogram for dPS block:



### DSC thermogram for PtBuA block:

