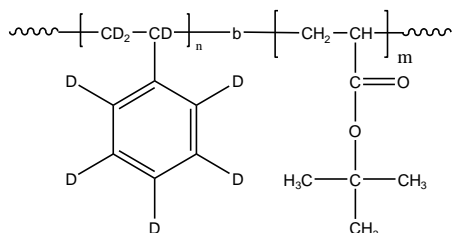


Sample Name:

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

Sample #: P8180-dPStBuA**Structure:****Composition:**

| Mn x 10 ³ | PDI |
|-------------------------------|-------|
| 106.0-b-38.0 | 1.10 |
| T _g for dPS block | 105°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.

Characterization:

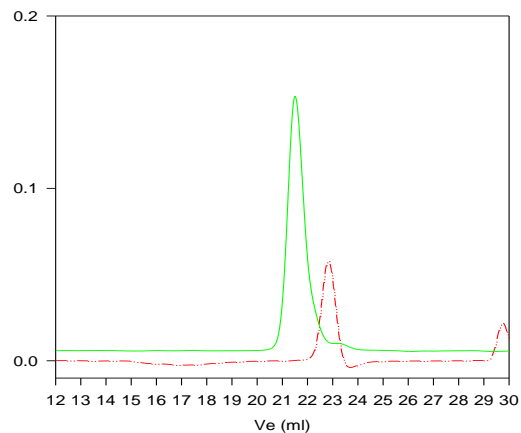
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors from Viscotek Co. Three SEC columns from Supelco (G6000-4000-2000 HXL) 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).

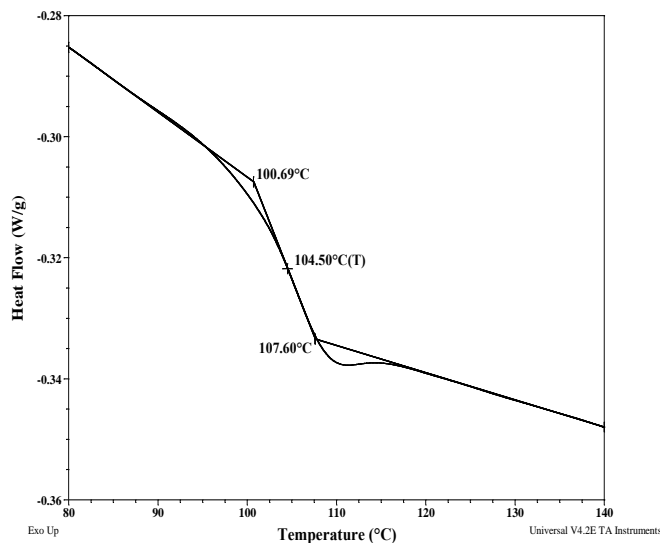
Solubility:

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

SEC of the product:**P8180-dPStBA**

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

--- Deuterated Polystyrene, M_n=106000, M_w=112500, PI=1.06
— Block Copolymer PdSt(106000)-b-PtBuA(38000), PI=1.10

DSC thermogram for dPS block:**Thermogram for PtBuA block:**