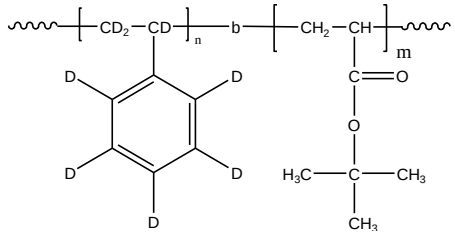
Sample Name:
Deuterated polystyrene (d_8)- poly tert.butylacrylate(protonated)

Sample #: P18280A-dPStBuA

Structure:



Composition:

Mn x 10^3	PDI
14.0-b-13.5	1.11
T_g for dPS block	101°C
T_g for tBuA block	47°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).

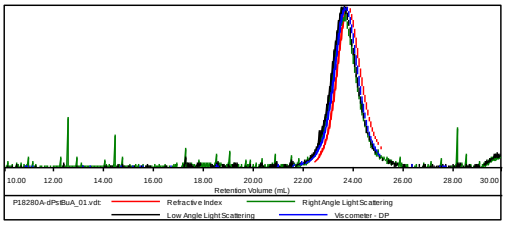
Solubility:

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

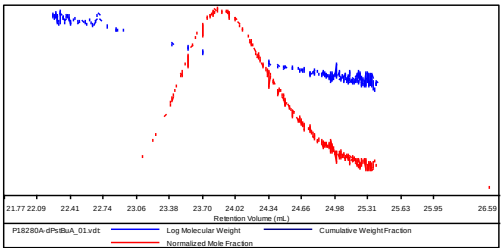
SEC of the product:

Sample ID: P18280A-dPstBuA

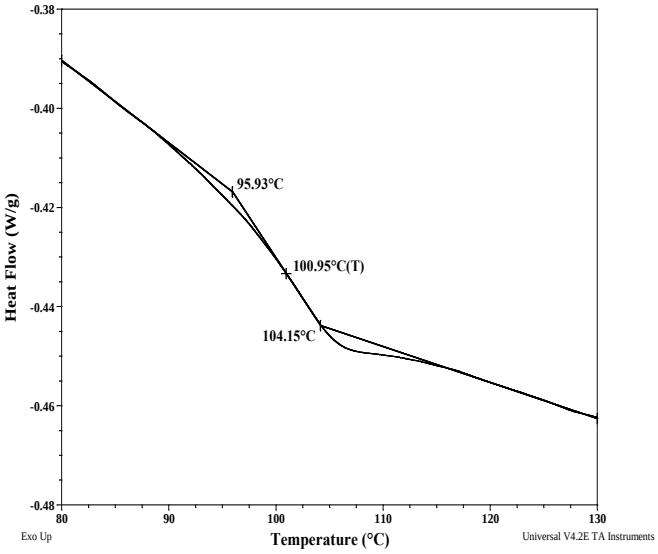
Concentration (mg/mL)	2.5265
Sample dn/dc (mL/g)	0.1260
Method File	PS80K-NOV-2013-0001.vcm
Column Set	3x PL 1113-6300
System	System 1



Sample	Mn	Mw	Mp	Mw/Mn	IV
P18280A-dPstBuA_01.vdt	27,610	30,836	29,865	1.117	0.3991



DSC thermogram for dPS block:



DSC thermogram for PtBuA block;