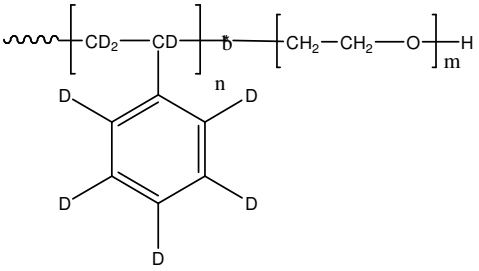
Sample Name:
Deuterated Polystyrene (d_8)- ethylene oxide (protonated)
Sample #: P19195-dPSEO

Structure:



Composition:

Mn x 10^3 dPS-b-EO	PDI
82.0-b-45.0	1.12

Synthesis Procedure:
Deuterated Poly(styrene-b-ethylene oxide) diblock copolymer is prepared by living anionic polymerization.

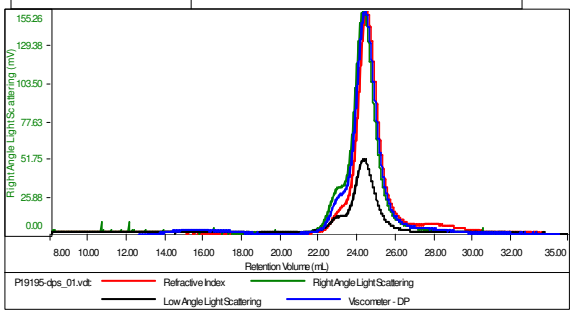
Characterization:
The molecular weight and polydispersity index (PDI) of the block copolymer are characterized by size exclusion chromatography (SEC). The composition of the block copolymer was calculated from ^{1}H-NMR by comparing the peak area of the phenyl polystyrene protons between 6.4 to 7.2 ppm (indicating about 1% protonated fraction) and the ethylene oxide protons at 3.65 ppm. This is given an approximate analysis. The yield of the polymer from the theoretical amount of deuterated styrene and protonated ethylene oxide monomer calculate also the compositions required.

Solubility:
The polymer is soluble in THF (at 35 °C), $CHCl_3$, benzene, toluene, dioxane. Low molecular weight SEO with high contents of the polyethylene oxide block can also be solubilized in methanol and water.

SEC of the product:

Sample ID: P19195-dPS first block

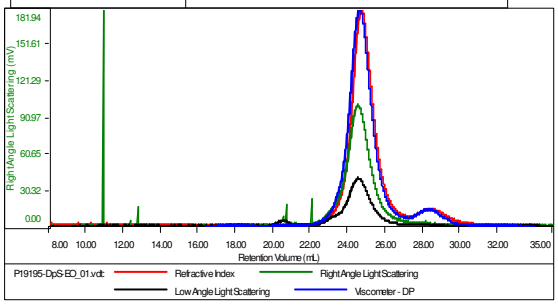
Concentration (mg/mL)	5.4589
Sample dn/dc (mL/g)	0.1850
Method File	PS80K-March6-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersi	Intrinsic Viscosity (dL/g)
P19195-dps_01.vdt	81,862	87,179	82,967	1.065	0.3110

Sample ID: P19195-dPS-EO

Concentration (mg/mL)	4.9225
Sample dn/dc (mL/g)	0.1350
Method File	PS80K-March6-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersi	Intrinsic Viscosity (dL/g)
P19195-DpS-EO_01.vdt	127,226	141,472	125,748	1.112	0.3396