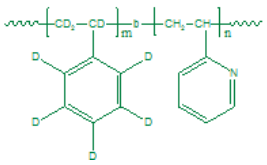
Sample Name: **Deuterated polystyrene (d_8)-b- 2 vinyl pyridine (protonated)**

Sample #: **P19306A-PdS2VP**

Structure:



Composition:

Mn x 10^3 (dPS-b-2VP)	PDI
44.0-b-17.0	1.06

T_g for dPS block	93.2°C
T_g for 2VP block	Not observed

Synthesis Procedure:

Poly (deuterated styrene-b-2-vinyl pyridiene) 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).

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).

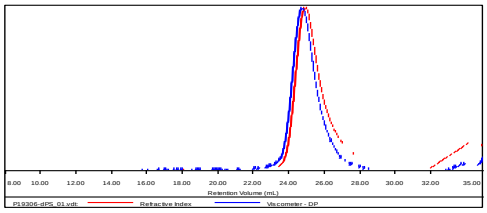
Solubility:

The polymer is soluble in THF (at 35°C), $CHCl_3$, benzene, toluene, dioxane.

SEC elugram of the P19306-1 dPS block:

Sample ID:P19306-dPS

Concentration (mg/mL)	1.6703
Sample dn/dc (mL/g)	0.1850
Method File	PS80K-May20-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF

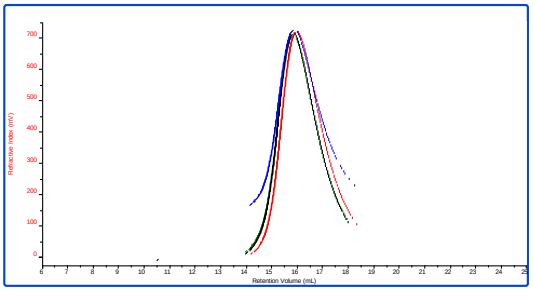


Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersit	Intrinsic Viscosity (dL/g)
P19306-dPS_01.vdt	44,266	53,044	55,587	1.198	0.4833

SEC elugram of the P19306A dPS2VP:

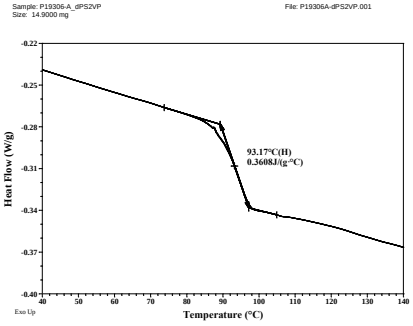
P19306A

dn/dc	0.1550
Flow Rate	0.7000
Solvent	DMF with LiBr
Method	PSS column-PMMA60K-Jan3-2019-0002.vcm



Sample	Mn	Mw	Mz	IV	Mw/Mn
P19306A_1_20	61,154	65,036	72,879	0.2402	1.063

DSC thermogram for dPS block:



References for further information:

1. S. K. Varshney, R. Fayt, Ph. Teyssie, and J.P. Hautekeer US Patent 5,264,527 (1993)
2. S. K. Varshney, Jian-Xin Zhang. US patent 7009,033 B3 2006.