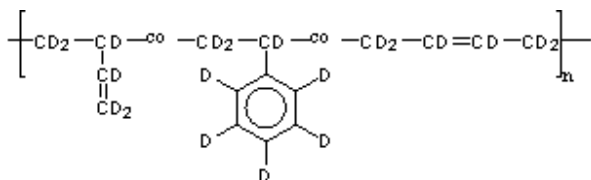


Sample Name: Random Copolymer

Deuterated Poly (Styrene (d8)-co-Butadiene (d6))

Sample # P19282-dPSdBdran

Structure:

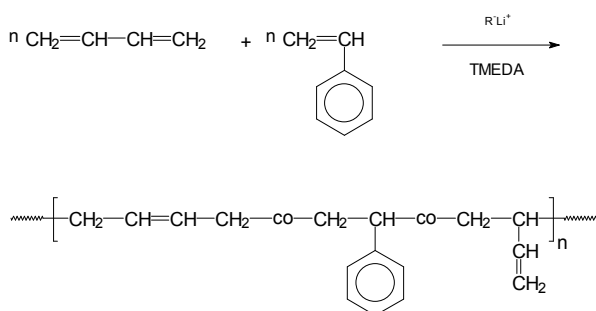


Composition: PdPS: 42% wt

Mn x 10 ³ dPSdBdran	PDI
20.5	1.5
Tg oC	-28

Synthesis:

Poly (styrene)-co-butadiene copolymer was prepared by anionic copolymerization of deuterated styrene (S) and deuterated butadiene (Bd) in presence of promoter. The scheme of the reaction is presented below:



Characterization:

- Molecular Weight:*

Size exclusion chromatography (SEC): Varian liquid chromatograph equipped with UV and refractive detector. SEC columns from Supelco were used with THF as the eluent. The columns were calibrated with monodisperse polybutadiene. The molecular weights and the polydispersity indices were calculated on the basis of universal calibration.

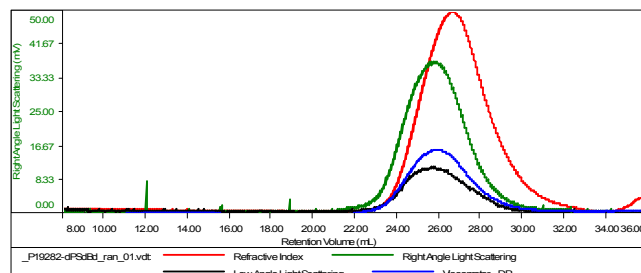
- Chemical Composition:*

The chemical composition and microstructure of polybutadiene were examined from deuterium NMR, which was recorded from Varian 500MHz instrument using CHCl₃ as a solvent.

SEC elugram of d8PS-d6PBd random copolymer:

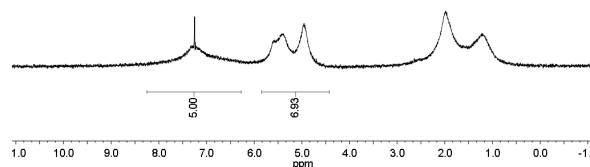
Sample ID:P19282dPSdBdran

Concentration (mg/mL)	2.7822
Sample dn/dc (mL/g)	0.1600
Method File	PS80K-April29-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
_P19282-dPSdBdran_01.vdt	20,512	30,158	27,548	1.470	1.2013

²H NMR (500 MHz, CHCl₃) of d₈PS-d₆PBd:



DSC of d₈PS-d₆PBd random copolymer:

