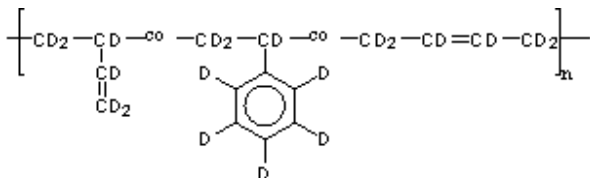


Sample Name: Random Copolymer

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

Sample # P19283A-dPSdPBdran

Structure:

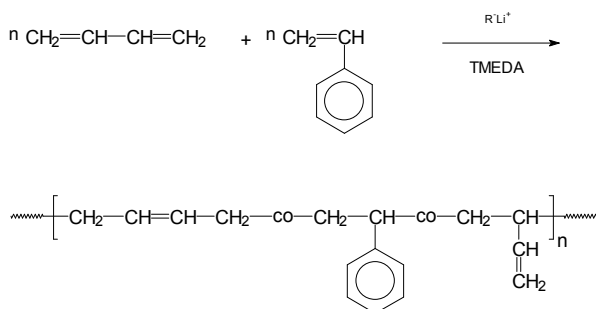


Composition: PdPS: 18% wt

Mn x 10 ³ dPSdPBdran	PDI
13.5	1.5
Tg oC	-25 oC

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.

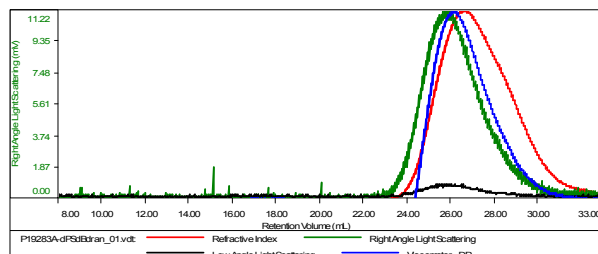
- Chemical Composition:*

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:

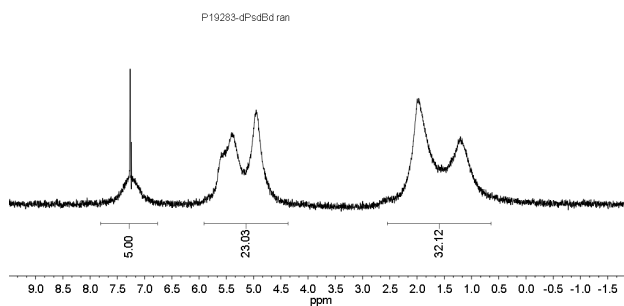
Sample ID:P19283A-dPSdPBdran

Concentration (mg/mL)	1.6433
Sample ch/c: (mL/g)	0.1300
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)
P19283A-dPSdPBdran_01.vcl	13,466	20,570	21,569	1.528	0.8636

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



DSC of d₈PS-d₆PBd random copolymer:

