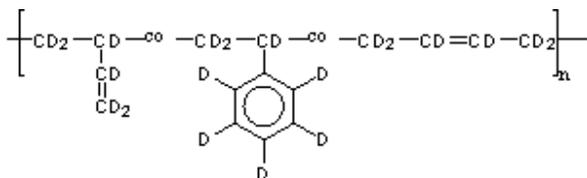


Sample Name: Random Copolymer
Deuterated Poly (Styrene (d8)-co-Butadiene (d6))
Sample # P19283-dPSdBdran

Structure:

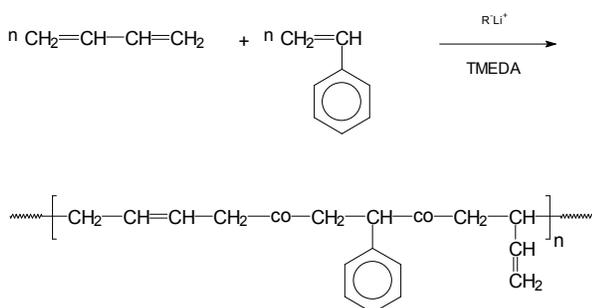


Composition: PdPS: 18% wt

Mn x 10 ³ dPSdBdran	PDI
33.0	1.20
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 indice were calculated on the basis of universal calibration.

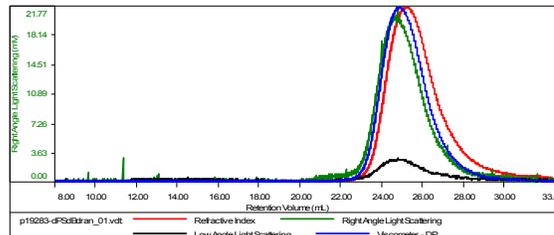
• *Chemical Composition:*

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:

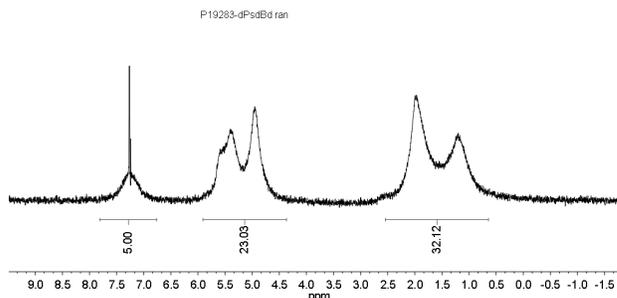
Sample ID: P19283-dPSdBdran

Concentration (mg/mL)	1.3199
Sample conc: (mL/g)	0.1300
Method File	PS80K-April29-2015-0000.vcm
Column Set	3xPL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
p19283-dPSdBdran_01.vdt	33,038	40,232	39,758	1.218	1.7268

²H NMR (500 MHz, CHCl₃) of d₈PS-d₆PD:



DSC of d₈PS-d₆PD random copolymer:

