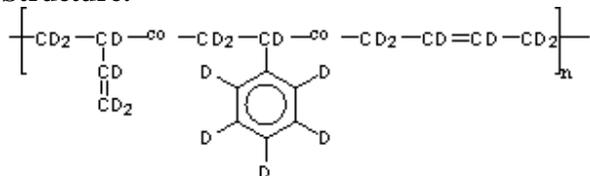


**Sample Name: Random Copolymer
Deuterated Poly (Styrene (d8)-co-Butadiene (d6))**

Sample#: P42790B-dPSdPBdran

Structure:

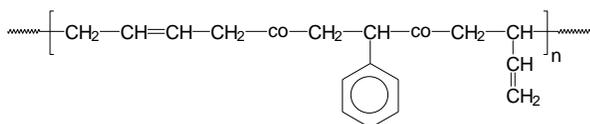
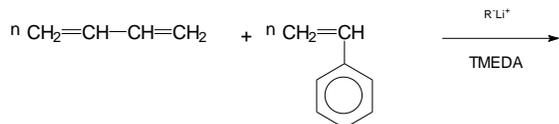


Composition: PdPS: 25% wt

Mn x 10 ³ dPSdPBdran	PDI
21.0	1.22
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:

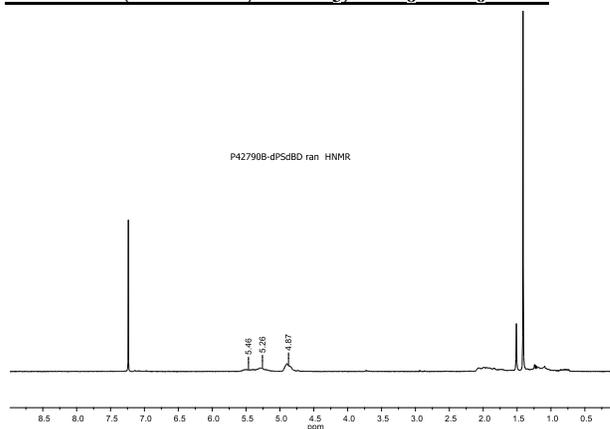
• *Molecular Weight:*

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.

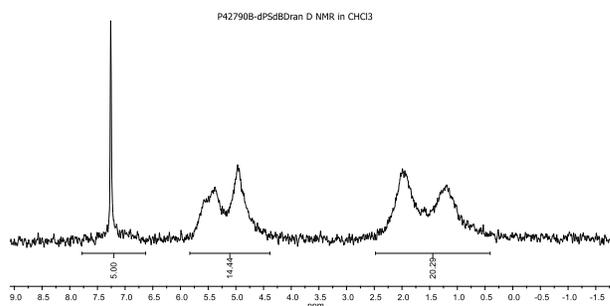
• *Chemical Composition:*

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

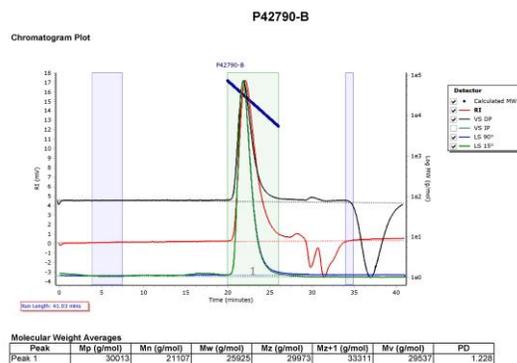
¹H NMR (500 MHz, CHCl₃) of d₈PS-d₆PBd:



DNMR (500 MHz, CHCl₃) of d₈PS-d₆PBd:



SEC elugram of d8PS-d6PBd random copolymer:



DSC of d₈PS-d₆PBd random copolymer:

