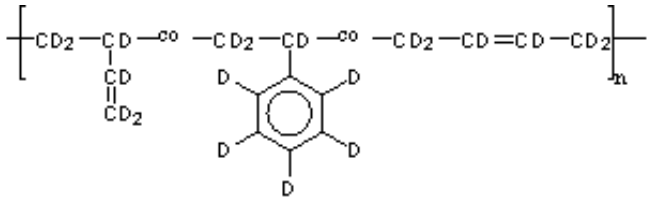
Sample Name:

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

Sample # P18149-dPSdPBd

Structure:

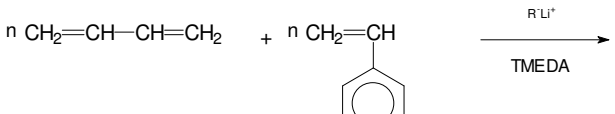


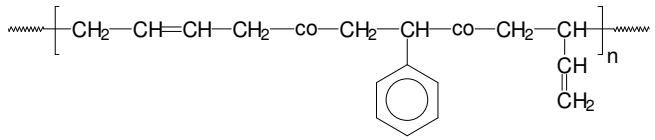
Composition: PdPS (mol%) : 86%

Mn x 10^3 dPSdPBdran	PDI
17.5	1.8

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:

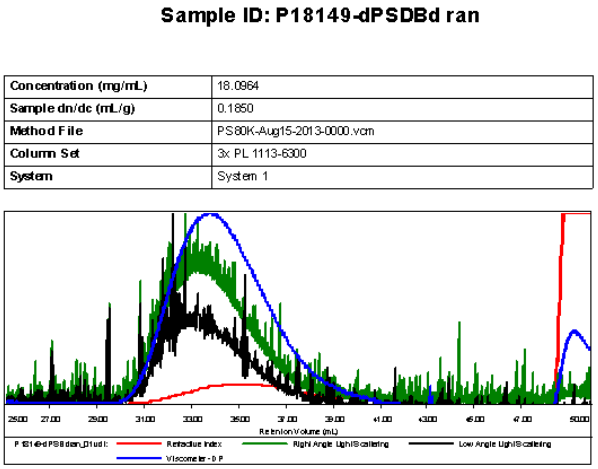
- *Molecular Weight:*

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:*

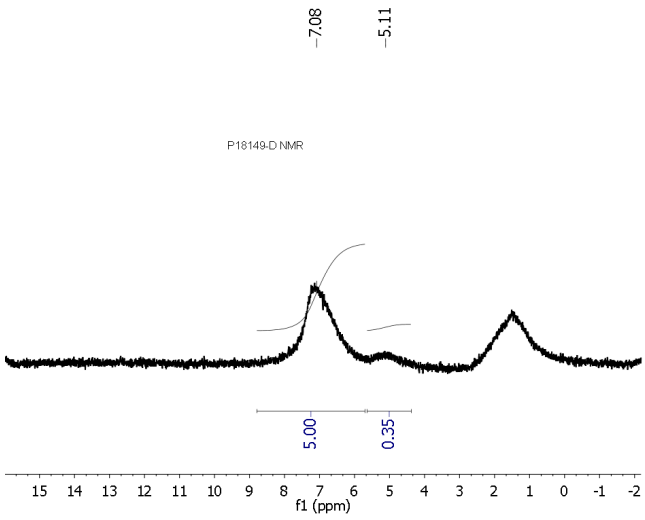
The chemical composition and microstructure of polybutadiene were examined from deuterium NMR, which was recorded from Varian 500MHz instrument using $CHCl_3$ as a solvent.

SEC elugram of d_8PS-d_6PBd random copolymer:



Sample	Mn	Mw	Mp	Mw/Mn	IV
P18149-dP SBdran_01.vdt	17,472	31,274	24,736	1.790	0.2884

^{2}H NMR (500 MHz, $CHCl_3$) of d_8PS-d_6PBd:



DSC of d_8PS-d_6PBd random copolymer: