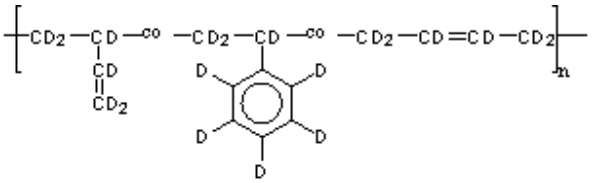
Sample Name: **Random Copolymer**
Deuterated Poly (Styrene (d8)-*co*-Butadiene (d6))

Sample#: **P42768-dPSdPBdran**

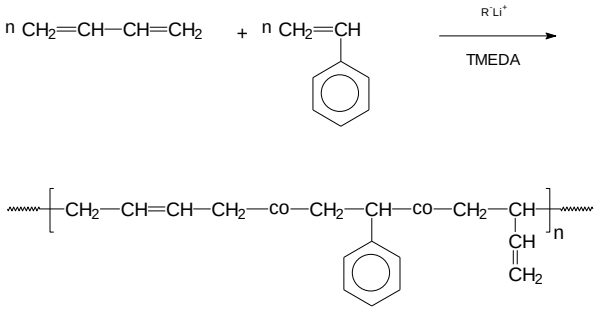
Structure:



Composition: PdPS: 25% wt

Mn x 10^3 dPSdPBdran	PDI
8.5	1.45
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:

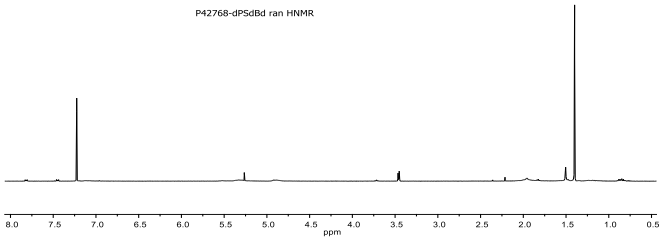
- *Molecular Weight:*

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.

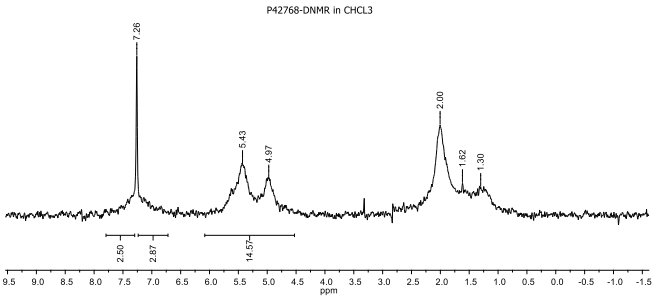
- *Chemical Composition:*

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

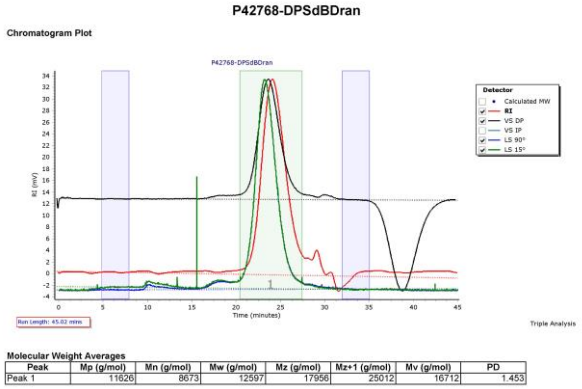
^{1}H-NMR spectrum (500 MHz, $CHCl_3$) of d_8PS-d_6PBd:



D-NMR spectrum (500 MHz, $CHCl_3$) of d_8PS-d_6PBd:



SEC elugram of d8PS-d6PBd random copolymer:



DSC of d_8PS-d_6PBd random copolymer: