

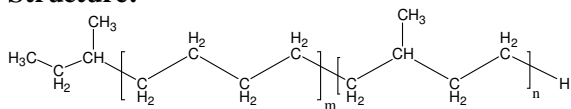
**Sample name:** Poly(Ethylene-*b*-Ethylene Propylene)

**Other name:**

**Hydrogenated form of Poly(Butadiene-*b*-Isoprene)  
predominantly in 1,4-addition**

**Sample #** P19642A-EEPr

**Structure:**



**Composition:**

Mn $\times 10^3$ (Bd-b-IP)	PDI
34.0-b-39 (compositions from $^1\text{H}$ NMR)	1.04

After Hydrogenation 35.5-b-40.0	1.04
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Hydrogenation	> 98%
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**Synthesis procedure:**

The polymer was synthesized by anionic polymerization in cyclohexane.

**Characterization:**

The polymer was characterized by  $^1\text{H}$  NMR, SEC, FTIR and DSC.

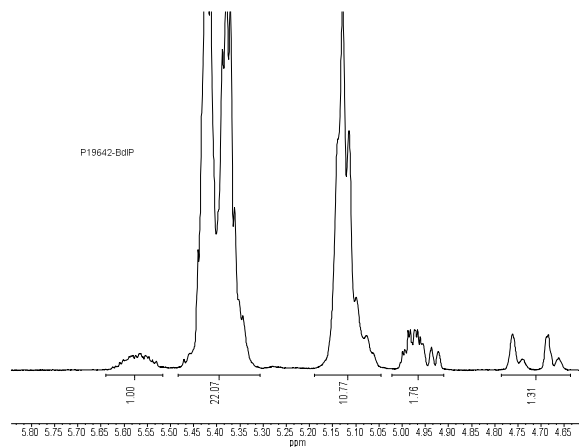
**DSC thermal analysis:**

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature ( $T_g$ ).

**$^1\text{H}$  NMR analysis:**

Chemical shifts of Unsaturated blocks:	
Polybutadiene (Bd):	Polyisoprene (Ip):
5.43 ppm	5.13 ppm
5.38 ppm	4.98 ppm
4.76 ppm	4.76 ppm
4.69 ppm	4.69 ppm

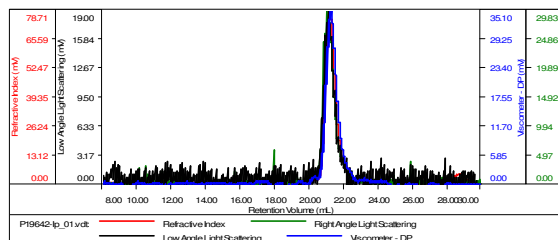
**$^1\text{H}$  NMR of Bd-IP diblock copolymer in  $\text{CDCl}_3$ :**



**SEC elugram**

**Sample ID-P19642-IP**

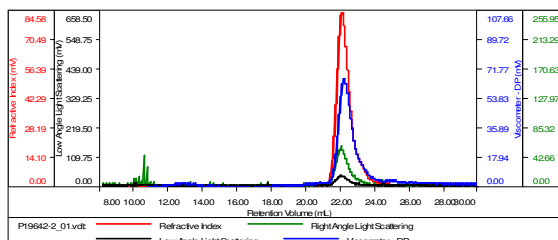
Concentration (mg/mL)	0.4634
Sample dn/dc (mL/g)	0.1220
Method File	PS80K-June30-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P19642-IP_01.vcl	36,689	39,716	36,982	1.08	1.7131

**Sample ID-P19642-IPBd**

Concentration (mg/mL)	0.6009
Sample dn/dc (mL/g)	0.1170
Method File	PS80K-June30-2015-0000.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)
P19642-2_01.vcl	73,222	75,138	70,874	1.05	3.2548