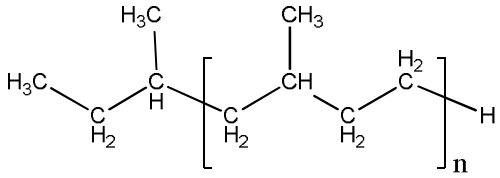
Sample name: **Poly(ethylene propylene)**

Synonym: **Hydrogenated polyisoprene, rich in 1,4-addition**

Sample # **P19695A-EPr**

Structure:



Composition:

Mn × 10^3		Mw/Mn
Poly(isoprene):	110.5	1.08
After hydrogenation:	**114.0**	**1.08**

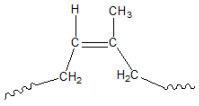
Microstructure:

1,4-addition		1,2- & 3,4-addition
Cis-isomer	Trans-isomer	
89 %	11 %	–

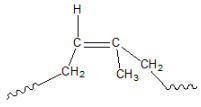
Synthesis procedure:
1,4-Polyisoprene was synthesized by living anionic polymerizatiion. Obtained polymer was hydrogenated under pressure of 600psi.

Characterization:
The microstructure of polymer was calculated by ^{1}H NMR analysis. Molecular weight and polydispersity index (M_w/M_n) of the polymer were determined by size exchlusion chromatography (SEC).

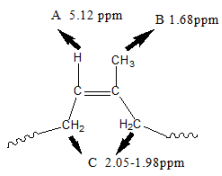
Proton shifts in ^{1}H NMR:

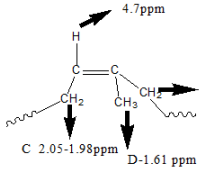


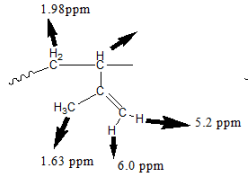
Cis 1,4 addition

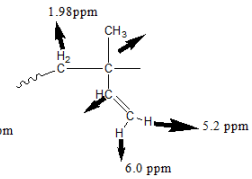


Trans 1,4 addition

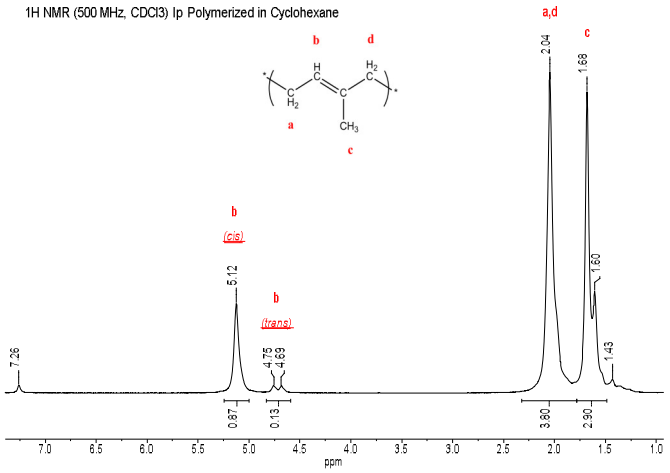




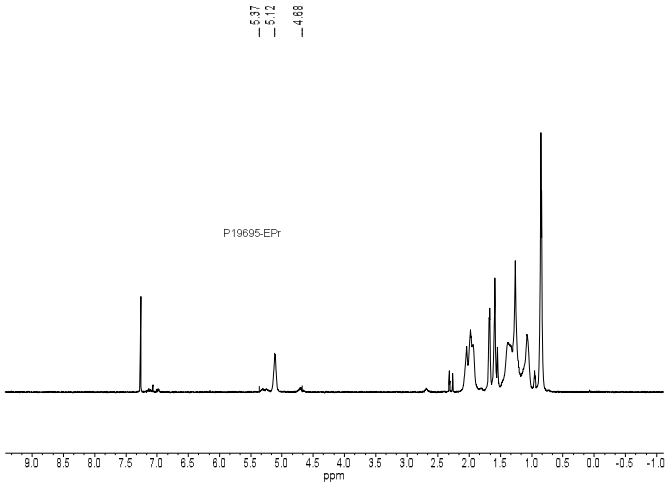




^{1}H NMR spectrum of polyisoprene in $CDCl_3$:



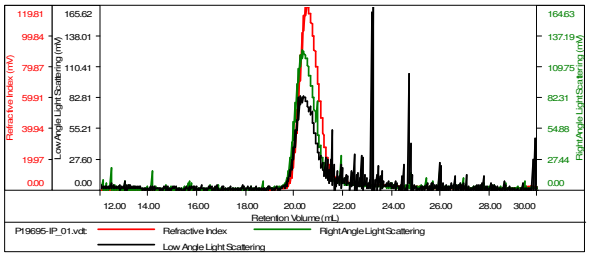
^{1}H NMR of hydrogenated polyisoprene in $CDCl_3$:



SEC elugram of polyisoprene:

Sample ID-P19695-IP

Concentration (mg/mL)	0.9707
Sample dn/dc (mL/g)	0.1250
Method File	PS80K-Jan-2016-0000.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)
P19695-IP_01.vdt	110,408	119,847	108,681	1.085	3.9057