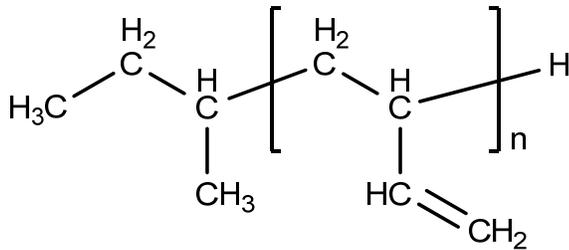


Sample Name: Polybutadiene (1,2-rich addition)

Sample #: P19292-Bd

Structure:



Composition:

Mn x 10 ³	PDI
1.38	1.04
PBd 1,4-addition	29 %
PBd 1,2-addition:	71 %

Synthesis procedure:

1,2-addition polybutadiene was prepared by anionic living polymerization of butadiene in non-polar/polar media.

Characterization:

The ratio between 1,4- and 1,2-addition was calculated by ¹H NMR spectroscopy. Molecular weight and polydispersity index were determined by size exclusion chromatography (SEC).

Thermal analysis:

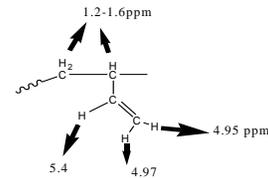
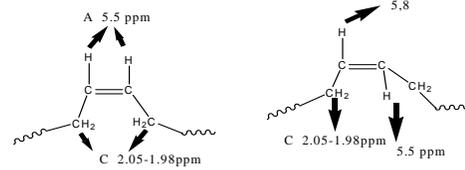
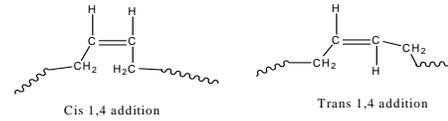
Thermal analysis of the copolymer was performed on a TA Q100 differential scanning calorimeter (DSC) at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Reference: Thermal transition of PBd.

Polybutadiene (Mn=2.2–2.4 x 10 ³)	T _g
1,2-addition: 78 %	-35°C
1,2-addition: 89 %	-29°C
1,2-addition: 99 %	-27°C

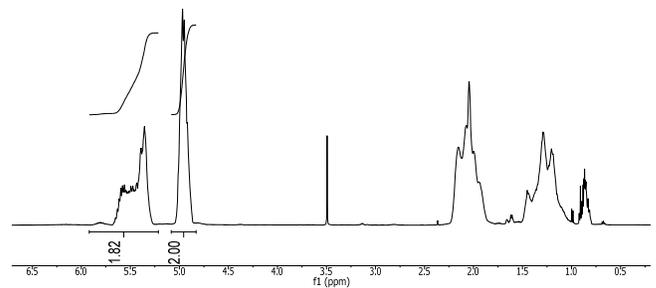
Solubility:

Polybutadiene is soluble in DMF, THF, toluene, hexane, cyclohexane and CHCl₃. It precipitates from methanol, ethanol and water.



¹H NMR (500 MHz, CDCl₃) of polybutadiene:

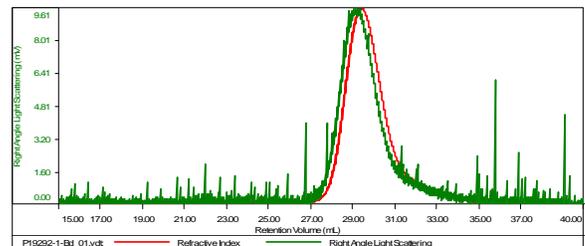
Company Polymer Source
1d_proton_16scans CDCl₃ (D:1\Polymer_Source) PSource 13



SEC elugram:

Sample ID: P19292-1-BdCH

Concentration (mg/mL)	28.9823
Sample dilute (mL/g)	0.1270
Method File	PS80K-MW20-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MN Number Average (Da)	MN Weight Average (Da)	MN at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P19292-1-Bd_01.vct	1,379	1,429	1,445	1.036	0.1198