

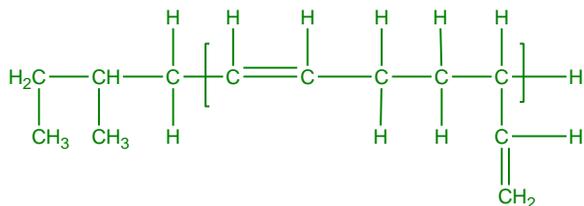
Sample Name:

**Polybutadiene (rich in 1,4 microstructure)**

**(1,2=40%, 1,4 = 60%)**

Sample#: P42495-Bd

**Structure:**

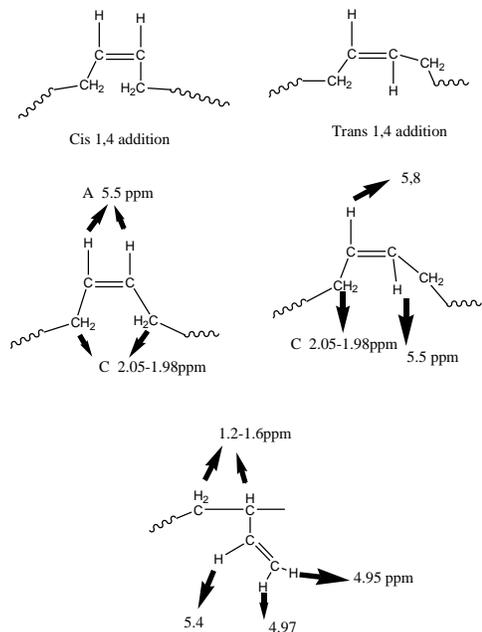


**Composition:**

Mn x 10 <sup>3</sup>	PDI
186.0	1.02
1,2 addition: 1,4 addition	40:60
Cis 1,4 and trans 1,4	20:80

**Synthesis Procedure:**

Polybutadiene (1,2-rich) is obtained by living anionic polymerization in THF using secBuLi as the initiator.



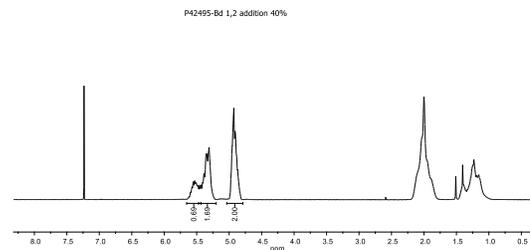
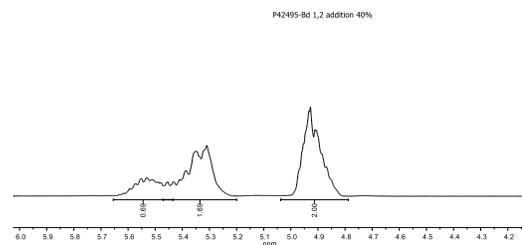
**Characterization:**

The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering

detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple detectors from Viscotek Co.

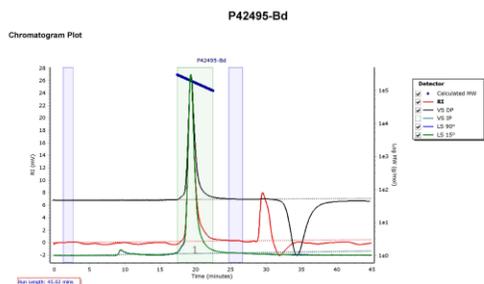
Polymer microstructure can be confirmed by <sup>1</sup>H-NMR where the spectrum of 1,2-polybutadiene contains of 1 vinylic proton signal at 5.4 ppm and 2 vinylic protons at 5.0 ppm but the spectrum of 1,4-polybutadiene only contains vinylic signals at 5.4 ppm.

**<sup>1</sup>H-NMR spectrum:**



**SEC elugram of P42495-Bd:**

Agilent GPC/SEC Software



Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mx (g/mol)	PDI
Peak 1	190029	185797	189683	192292	192748	192443	1.021