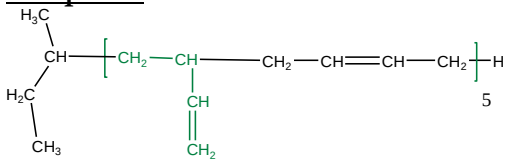
Sample Name: Polybutadiene (rich in 1,2 microstructure) (1,2=80% , 1,4 = 20%)

Sample #: P18361-Bd

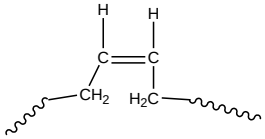


Composition:

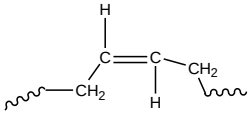
Mn x 10^3	PDI
0.30	1.05

Synthesis Procedure:

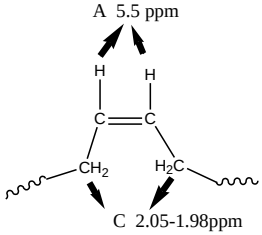
Polybutadiene (1,2-rich) is obtained by living anionic polymerization in THF. Using Sce. BuLi initiator.

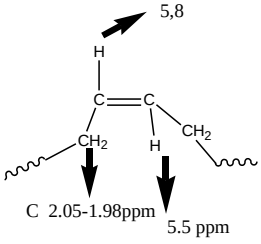


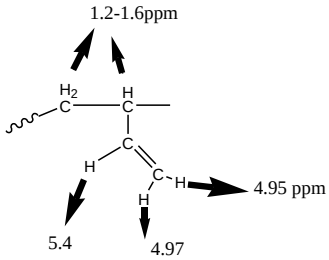
Cis 1,4 addition



Trans 1,4 addition



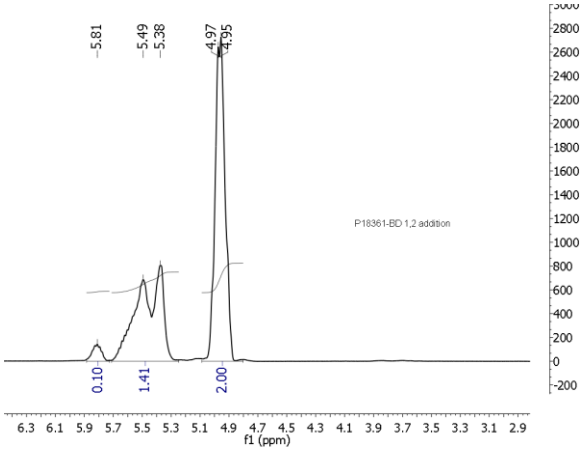


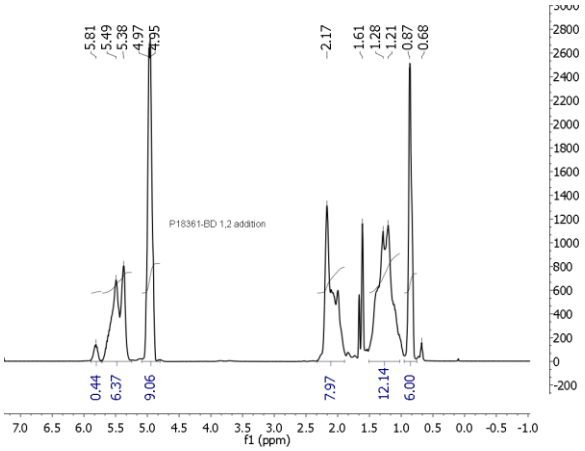


Characterization:

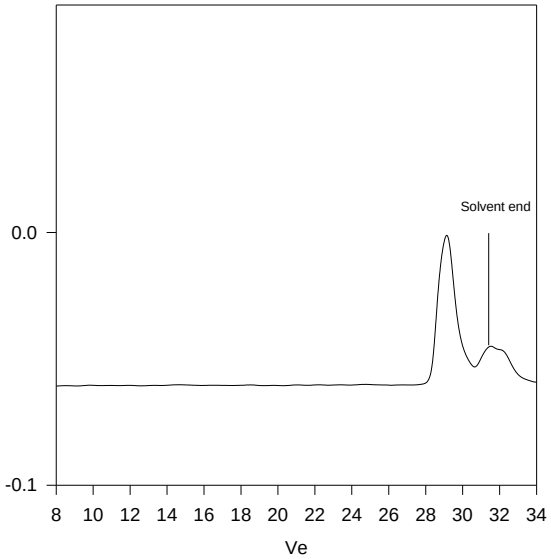
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple detectors from Viscotek Co.

Polymer microstructure can be confirmed by ^{1}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.





P18361-Bd



Size exclusion chromatography of oligomers:

Pentamer Mw/Mn 1.05