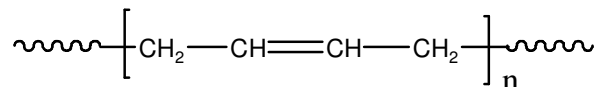
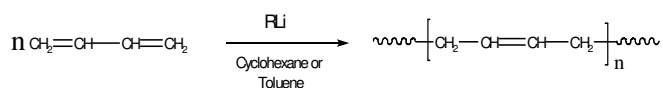


**Sample Name:****Polybutadiene (predominantly 1,4-addition)****Sample # P1978-Bd****Structure:****Composition:**

$M_n \times 10^3$	PDI
18.2	1.15

**Synthesis procedure:**

Polybutadiene (1,4-rich microstructure) is obtained by living anionic polymerization in toluene or cyclohexane. The reaction scheme is shown below:

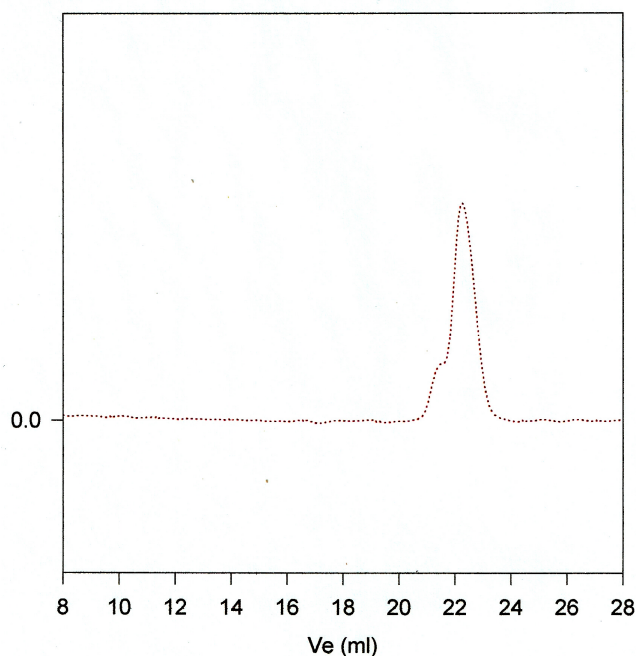
**Characterization:**

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  $^1\text{H-NMR}$  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.

**Solubility:**

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

**SEC of homopolymer:****P1978-Bd**

Size exclusion chromatography of polybutadiene with respect to polybutadiene standards:

$M_n=18200$ ,  $M_w=21000$ ,  $M_w/M_n=1.15$