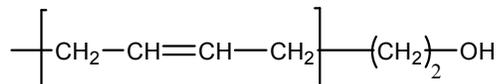


**Sample Name: Hydroxy Terminated Polybutadiene, 1,4-microstructure**

**Sample #: P4963-BdOH**

**Structure:**

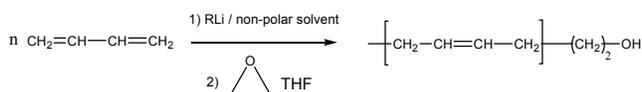


**Composition:**

Mn x 10 <sup>3</sup>	PDI
12.5	1.03

**Synthesis Procedure:**

1,4-addition hydroxy terminated polybutadiene was prepared by anionic living polymerization of butadiene in non-polar solvent followed by termination with ethylene oxide. The scheme of the reaction is illustrated below:



**Characterization:**

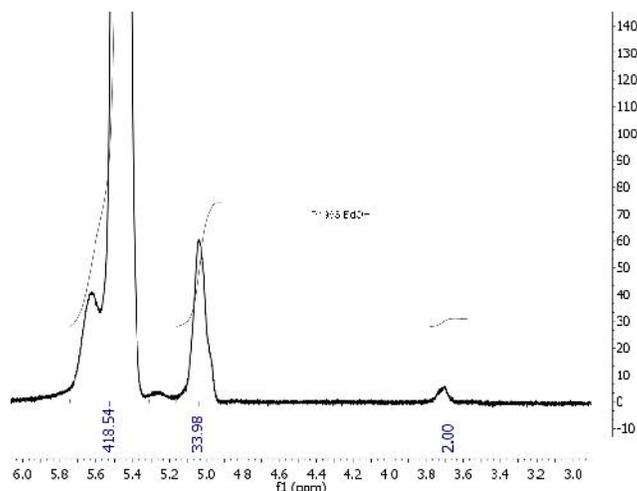
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple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

**Functionality:** functionality of the obtained polymer was determined by reacting polymer in dried non quantity of acetic anhydride in the presence of pyridine as a catalyst and the liberated COOH was titrated by acid-base titration.

**Solubility:**

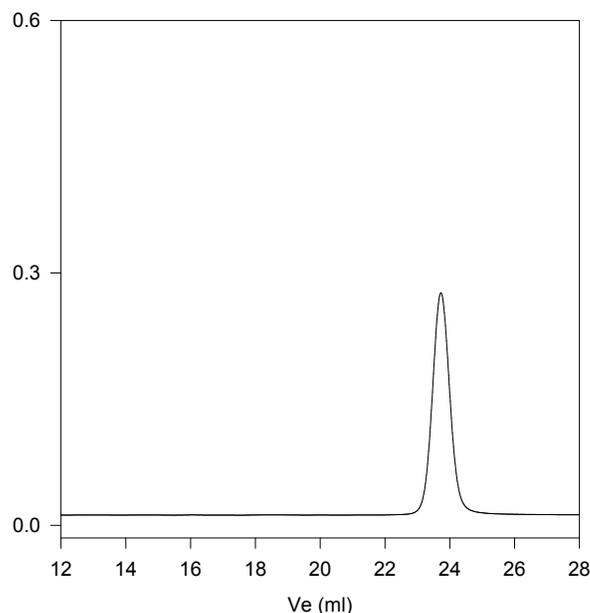
Hydroxy terminated polybutadiene is soluble in DMF, THF, toluene, hexane, cyclohexane and CHCl<sub>3</sub>. It precipitates from methanol, ethanol, water.

**<sup>1</sup>H NMR of the Polymer:**



**SEC of Sample:**

**P4963-BdOH(1,4 rich addition)**



Size exclusion chromatography of polybutadiene:

M<sub>w</sub>=12500, M<sub>n</sub>=12800, M<sub>w</sub>/M<sub>n</sub>=1.03

SOLUTION VISCOSITY IN THF AT 35 °C: 0.685 dl/g

dn/dc IN THF AT 35 °C 0.127ml/g

RADIUS OF GYRATION IN THF AT 35 °C: 5.71nm