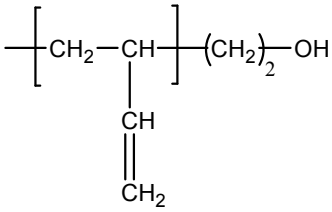
Sample Name: **Hydroxy Terminated**

**Polybutadiene, 1,2-rich microstructure**

Sample #: **P9054-BdOH**

**Structure:**

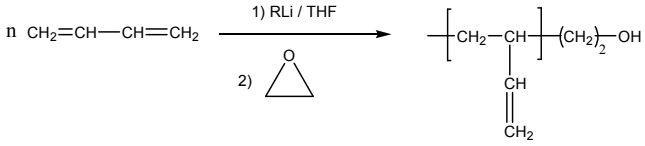


**Composition:**

| Mn x $10^3$ | PDI | 1,2 addition |
|---|---|---|
| 6.5 | 1.06 | >89% |

**Synthesis Procedure:**

1,2-rich microstructure addition hydroxy terminated polybutadiene was prepared by anionic living polymerization of butadiene in polar solvent such as THF at O °C followed by termination with ethylene oxide. The scheme of the reaction is illustrated below:




**Characterization:**

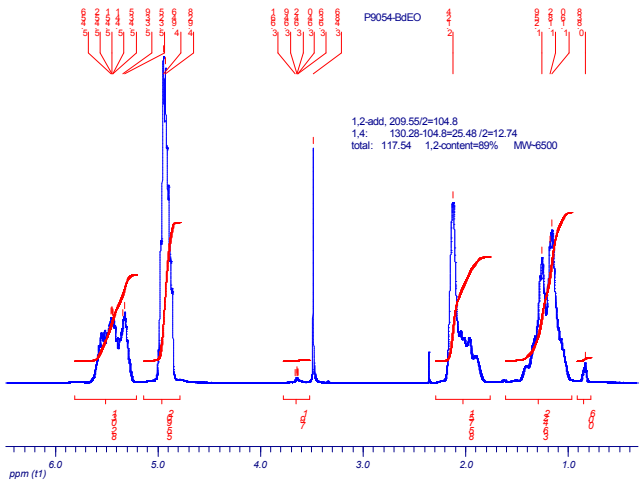
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple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

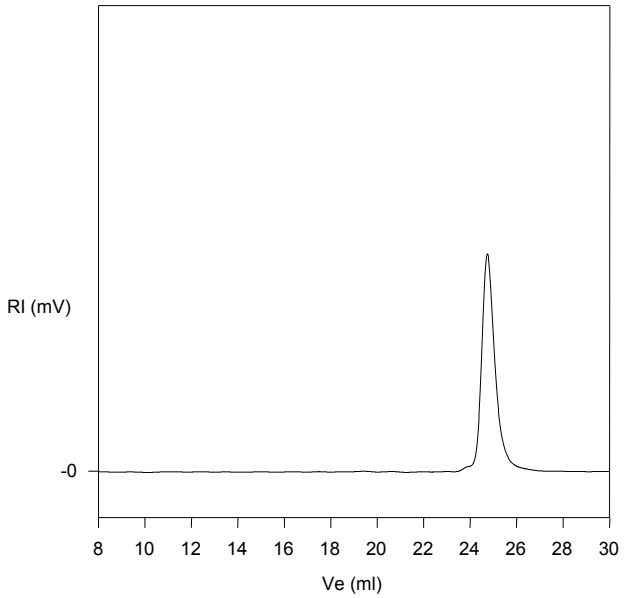
Hydroxy terminated polybutadiene is soluble in DMF, THF, toluene, hexane, cyclohexane and $CHCl_3$. It precipitates from methanol, ethanol and water.

**HNMR of the Product:**




**SEC of Sample:**

**P9054-BdOH (rich in 1,2 addition)**




Size Exclusion Chromatography of polystyrene;

—— $M_n$ = 6500, $M_w$ =6900, $M_w/M_n$ = 1.06