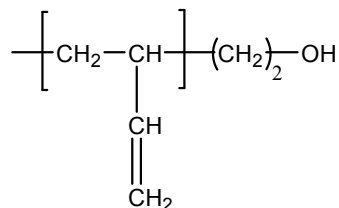


**Sample Name:** Hydroxy Terminated  
Polybutadiene, 1, 2-rich microstructure

**Sample #:** P8944-BdOH

**Structure:**

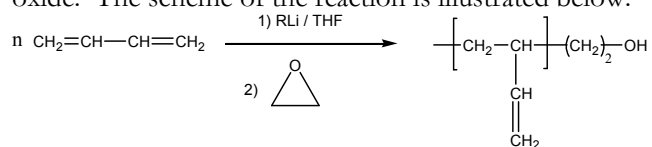


**Composition:**

$M_n \times 10^3$	PDI	1,2 addition
20.0	1.05	>90%
$T_g (^{\circ}\text{C})$	-22	

**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 0 °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.

**Thermal Analysis:**

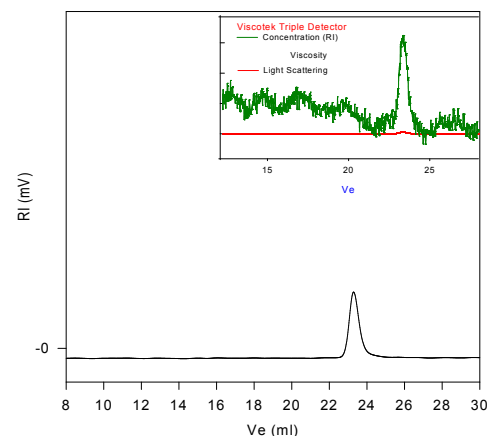
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature ( $T_g$ ) of the sample has been considered.

**Solubility:**

Hydroxy terminated polybutadiene is soluble in DMF, THF, toluene, hexane, cyclohexane and  $\text{CHCl}_3$ . It precipitates from methanol, ethanol and water.

**SEC of Sample:**

**P8944-BdOH (rich in 1,2 addition)**



Size Exclusion Chromatography of polystyrene;

$M_n = 20000$ ,  $M_w = 21000$ ,  $M_w/M_n = 1.05$

In box Light Scattering data from Triple detectors:  
dn/dc in THF 0.127ml/g solution Viscosity in THF at 35 oC: 0.422 dl/g  
RgW: 6.70nm

**DSC thermogram for the polymer:**

