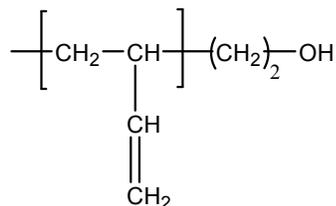


Sample Name: Hydroxy Terminated Polybutadiene, 1, 2-rich microstructure

Sample #: P8944-BdOH

Structure:

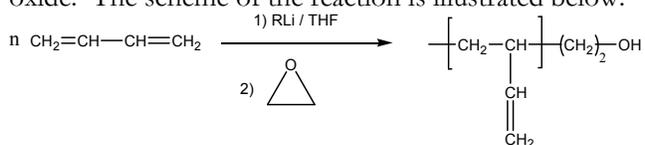


Composition:

$M_n \times 10^3$	PDI	1,2 addition
20.0	1.05	>90%
T_g (°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:

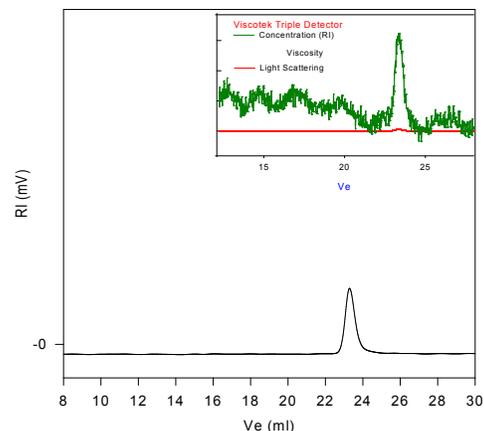
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T_g) of the sample has been considered.

Solubility:

Hydroxy terminated polybutadiene is soluble in DMF, THF, toluene, hexane, cyclohexane and 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 0.127 ml/g solution Viscosity in THF at 35 °C: 0.422 dl/g
 R_gW : 6.70 nm

DSC thermogram for the polymer:

