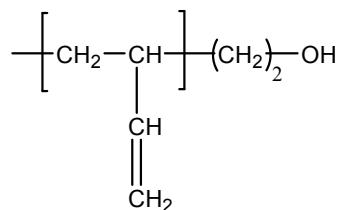


Sample Name: Hydroxy Terminated Polybutadiene, 1,2-rich microstructure
Sample #: P5840-BdOH

Structure:

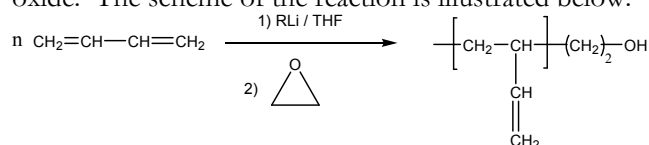


Composition:

$M_n \times 10^3$	PDI
4.7	1.05
OH functionality	>98%
T_g (°C)	-17
Microstructure	1,2: 60%

Synthesis Procedure:

1,2-rich microstructure addition hydroxy terminated polybutadiene was prepared by anionic living polymerization of butadiene in polar-nonopolar solvent mixture 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.

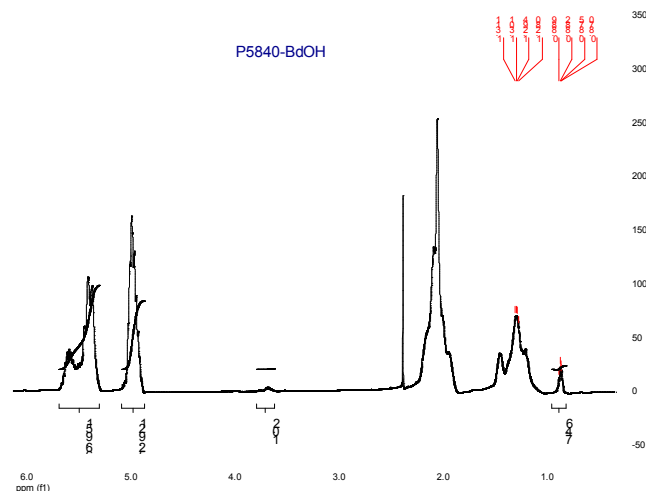
Thermal Analysis:

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:

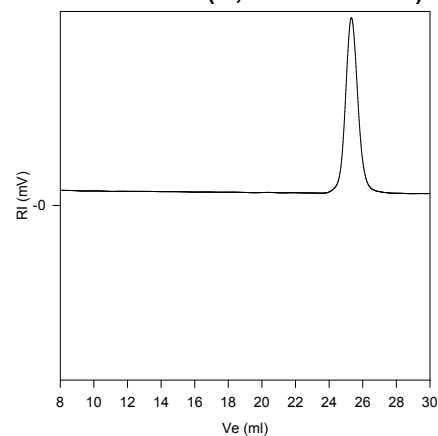
Hydroxy terminated polybutadiene is soluble in DMF, THF, toluene, hexane, cyclohexane and CHCl_3 . It precipitates from methanol, ethanol, water.

HNMR of the polymer:



SEC of Sample:

P5840-BdOH (1,2 addition-60%)



Size Exclusion Chromatography of polystyrene;
 — $M_n = 4700$, $M_w = 4900$, $M_w/M_n = 1.05$ by HNMR