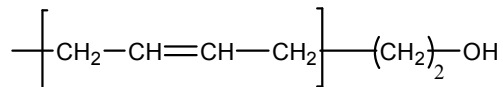


Sample Name: Hydroxy Terminated Polybutadiene, 1,4-microstructure

Sample #: P4963-BdOH

Structure:

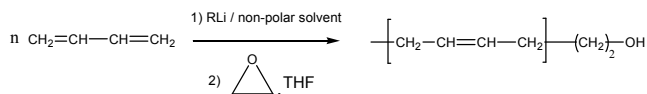


Composition:

Mn x 10 ³	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:

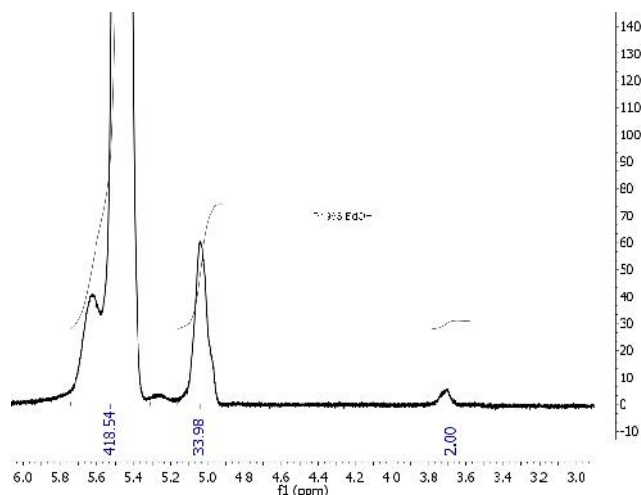
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple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

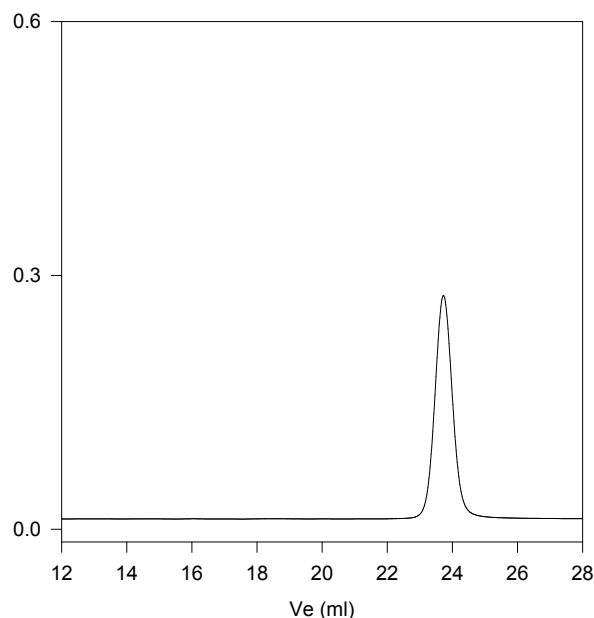
Hydroxy terminated polybutadiene is soluble in DMF, THF, toluene, hexane, cyclohexane and CHCl₃. It precipitates from methanol, ethanol, water.

¹H NMR of the Polymer:



SEC of Sample:

P4963-BdOH(1,4 rich addition)



Size exclusion chromatography of polybutadiene:

M_w=12500, M_n=12800, M_w/M_n=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