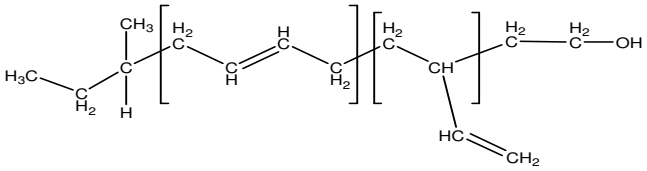
Sample Name: **Hydroxy Terminated Polybutadiene, 1, 4-microstructure**

Sample #: **P40108-BdOH**

Structure:

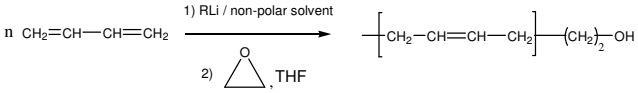


Composition:

Mn x 10^3	PDI
18.5	1.03
1,4 microstructure	92%

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.

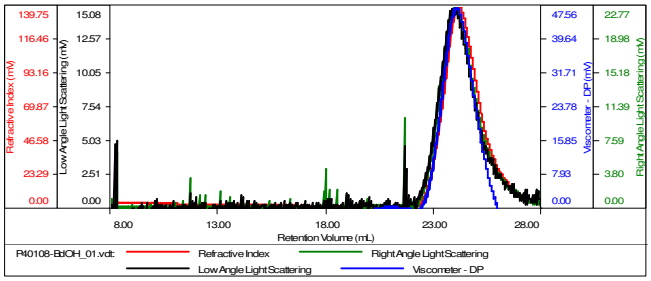
Solubility:

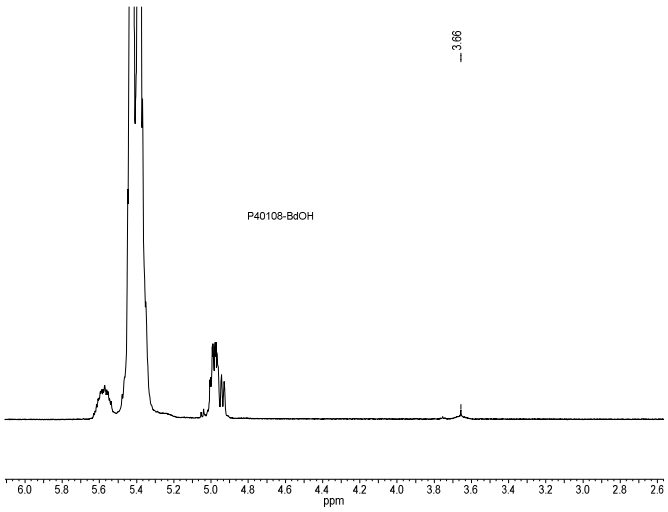
Hydroxy terminated polybutadiene is soluble in DMF, THF, toluene, hexane, cyclohexane and $CHCl_3$. It precipitates from methanol, ethanol, water.

SEC elugram of the polymer:

Sample ID: P40108-BdOH

Concentration (mg/mL)	6.3157
Sample dn/dc (mL/g)	0.1090
Method File	PS80K-29August2016-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	Mn (Da)	Mw (Da)	Mw/Mn	IV (dL/g)	Mp (Da)
P40108-BdOH_01.vdt	18,550	19,065	1.028	0.3836	18,476

^{1}H NMR spectrum of the polymer: