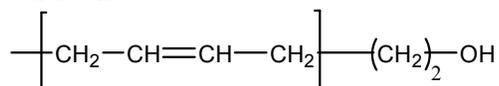


Sample Name: Hydroxy Terminated Polybutadiene, 1,4-microstructure

Sample #: P4965-BdOH

Structure:

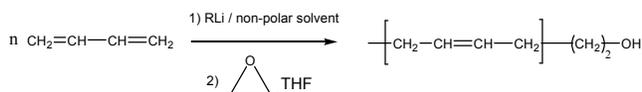


Composition:

| | |
|-------------------|------|
| $M_n \times 10^3$ | PDI |
| 19.5 | 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.

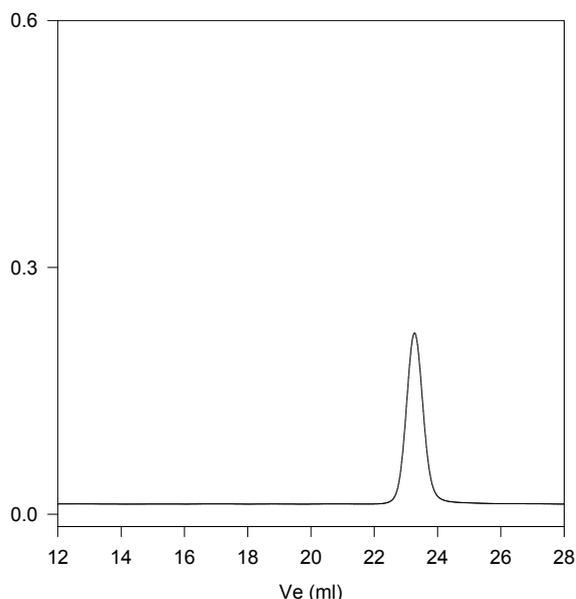
Functionality: functionality of the obtained polymer was determined by reacting polymer in dried non quantity of acetic anhydride in the presence of pyridine as a catalyst and the liberated COOH was titrated by acid-base titration.

Solubility:

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

SEC of Sample:

P4965-BdOH(1,4 rich addition)



Size exclusion chromatography of polybutadiene:

$M_w=19500$, $M_n=20000$, $M_w/M_n=1.03$

SOLUTION VISCOSITY IN THF AT 35 °C: 0.774 dl/g

dn/dc IN THF AT 35 °C 0.127ml/g

RADIUS OF GYRATION IN THF AT 35 °C: 7.26nm