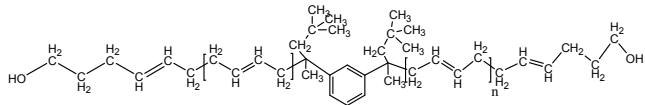


Sample Name: α - ω dihydroxy Terminated Polybutadiene, 1,4-rich microstructure

Sample #: P10634-Bd2OH

Structure:

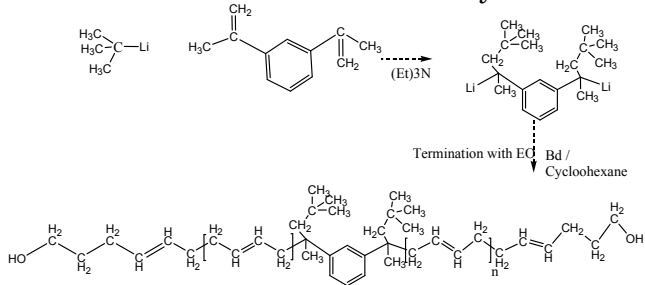


Composition:

Mn x 10 ³	PDI
2.8	1.15

Synthesis Procedure:

1,4-rich microstructure addition dihydroxy terminated polybutadiene was prepared by anionic living polymerization of butadiene in apolar solvent such as cyclohexane at 0 °C using difunctional initiator . Initiator was prepared by reaction of 1,3 diisopropenyl benzene in Benzene at -10 oC with tert.butyllithium in presence of triethyl amine. Reaction was termination with ethylene oxide.



Characterization:

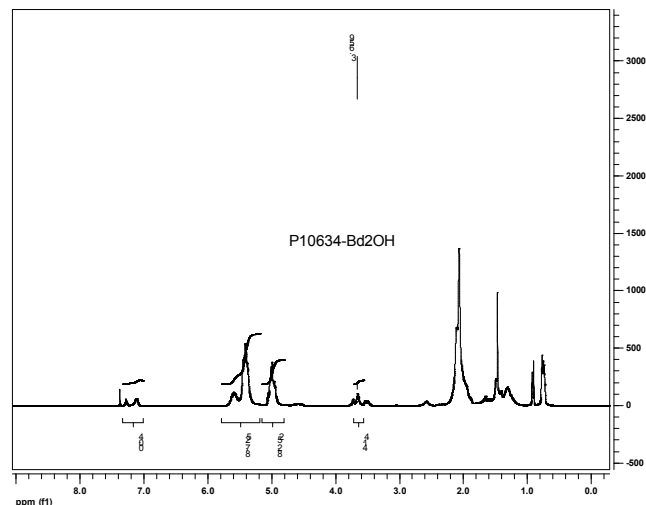
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple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

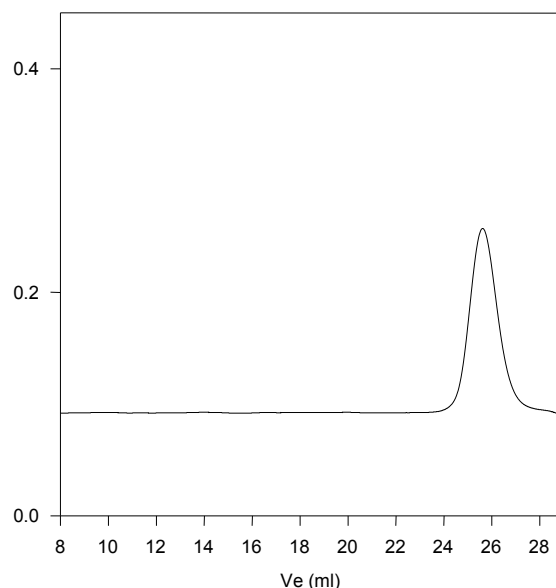
Hydroxy terminated polybutadiene is soluble in THF, toluene, hexane, cyclohexane and CHCl₃. It is also soluble in methanol, ethanol.

¹H NMR of the Product:



SEC of Sample:

P10634-Bd2OH (1,2 addition)



Size exclusion chromatography of poly(butadiene-b-ethylene oxide):

— 1,4 rich polybutadiene M_n=2800, M_w=3200, PI=1.15