

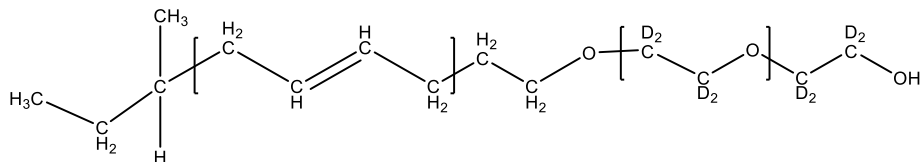
# Product Profile

## Identification

**Product Name:** Poly(1,4-butadiene)-b-poly(deuterated ethylene oxide-d4)

**Product Lot Number:** P45034-Bd-dEO

## Product Chemical Architecture:



## Composition:

Mn x 10 <sup>3</sup> Bd-b-(d4)EO	Mw/Mn (PDI)	% 1,4 addition Butadiene
2.5-b-1.5	1.06	>92.0
Dp of each block: Bd <sub>46</sub> EO <sub>34</sub> from NMR		

## Method of Synthesis

The polymer is synthesized by anionic polymerization using sec Butyl-lithium as initiator in 2 steps synthesis.

- Synthesis of Hydroxyl end terminated poly butadiene and
- Polymerization of deuterated ethylene oxide using potassium salt of poly butadiene,

## Solubility in different solvents

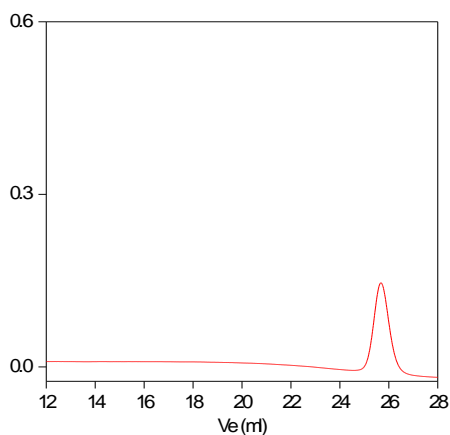
THF	√		
CHCl <sub>3</sub>	√	CHCl <sub>3</sub>	√
Toluene-Hot	√		

**Purification of Polymer:** to remove naphthalene < 0.1% level.

## Validation of Architecture

### A. Gel Permeation Chromatography (GPC), SEC- Profile for PBd-EO:

P45034-BdOH(1,4 rich addition)



Size exclusion chromatography of polybutadiene:  
 $M_w=2500$ ,  $M_n=2700$ ,  $M_w/M_n=1.05$   
 Solution Viscosity in THF at 35°C: 0.185dl/g  
 Radius of Gyration in THF at 35°C: 2.54nm

**Workspace Details**

Workspace name

Location

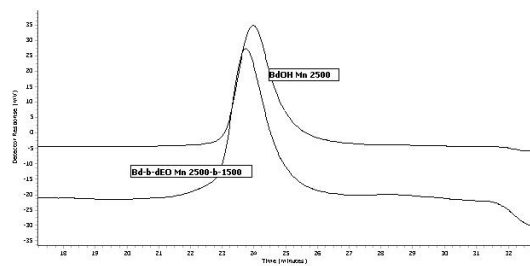
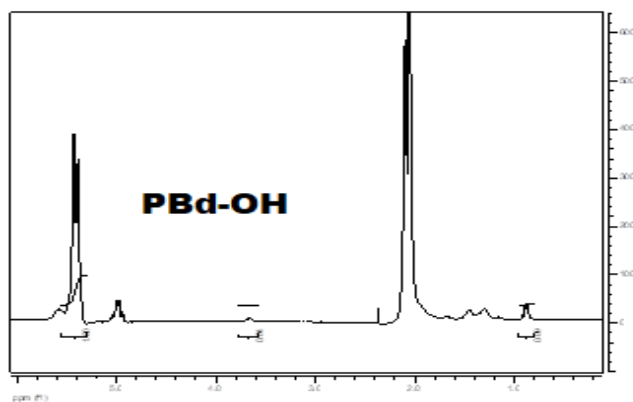
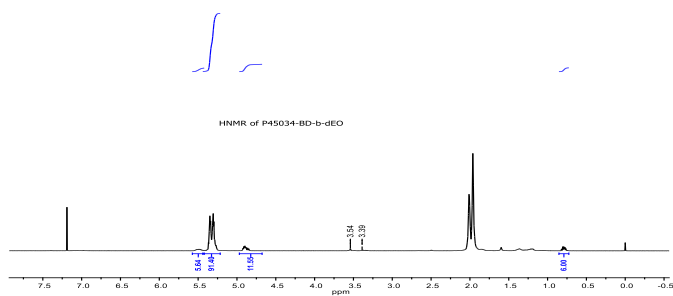
Comments

Created by

Calibration 2024-08-30

D:\GPC\Workspaces\Calibration 2024-08-30\

Agilent12 at 12:03:19 PM on August 30, 2024

**Chromatogram Plot****HNMR of Poly butadiene OH terminated:****B. NMR (HNMR) of Poly butadiene-b-d4 Ethylene Oxide:**

D NMR of P45034 run in CHCL3

