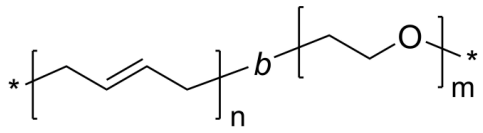
Sample Name: **Poly(1,4-butadiene)-b-poly(ethylene oxide)**

Sample #: **P43317B-BdEO**

Structure:



Composition:

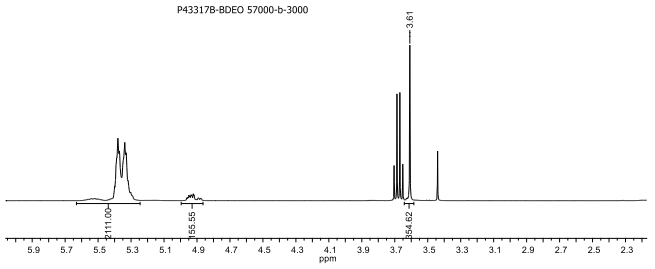
Mn x 10^3 Bd-b-EO	Mw/Mn (PDI)
57.0-b-3.0	1.01

Synthesis Procedure:
Poly(1,4-butadiene)-b-poly(ethylene oxide can be prepared by the different routes as reported in the literature (ref: Macromolecules 1996, 29, 6994). The direct synthesis of diblock copolymer using lithium counter ion in the presence of Phosphazene Base t-BuP4 is interesting as reported in *Macromolecules*, 32 (8), 2783 -2785, 1999. These polymers can also be successfully synthesized using the different end functionalized polymers as investigated in our lab. These methodologies are proprietary.

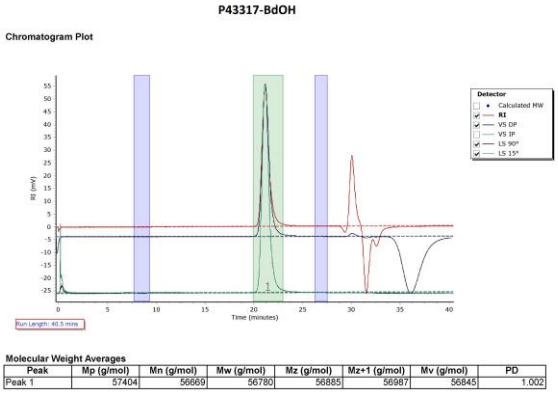
Characterization:
OH terminated polybutadiene was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ^{1}H-NMR spectroscopy by comparing the peak area of the vinylic butadiene protons at about 5.4 ppm with the ethylene oxide protons at 3.6 ppm. Block copolymer PDI is determined by SEC.

Solubility:
Poly(butadiene-b-ethylene oxide) is soluble in THF, $CHCl_3$, and toluene. The polymer has variable solubility in hexane, methanol, ethanol, and water depending on its composition.

^{1}H NMR spectrum of the sample:



SEC elugram of the BdOH Sample:



Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	57404	56669	56780	56885	56987	56845	1.002