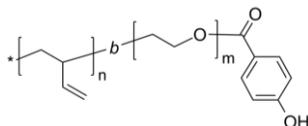


**Sample Name:** Poly(1,2-butadiene)-b-poly(ethylene oxide), ω-(4-hydroxy benzoic ester)-terminated

**Sample #:** P43380-BdEOBz  
(poly butadiene block rich in 1,2 microstructure)

**Structure:**



**Composition:**

| Mn x 10 <sup>3</sup><br>Bd-b-EO | Mw/Mn (PDI) |
|---------------------------------|-------------|
| 2.5-b-1.3                       | 1.04        |
| % 1,2 addition Butadiene: 85    |             |

**Synthesis Procedure:**

Poly(butadiene(1,4 addition or 1,2 addition)-b-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-BuP<sub>4</sub>** 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.

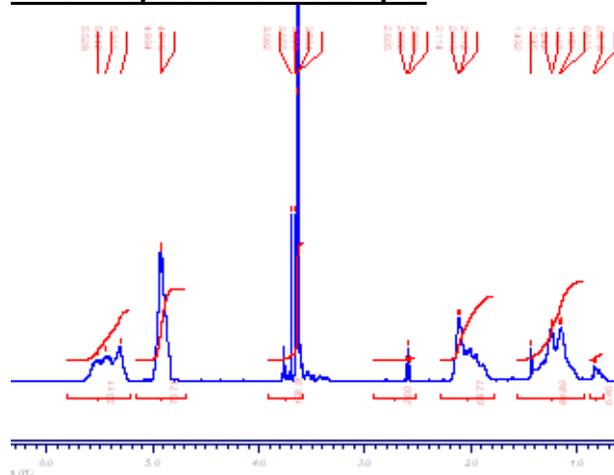
**Characterization:**

OH terminated polybutadiene polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of the vinylic butadiene protons between about 5.0-5.4 ppm with the ethylene oxide protons at 3.6 ppm. Block copolymer PDI is determined by SEC. **Note:** The <sup>1</sup>H-NMR of 1,2-polybutadiene is composed of 1 proton signal at 5.4 ppm and 2 proton signals at 5.0 ppm. Signals due to vinylic 1,4-polybutadiene are also present at 5.4 ppm.

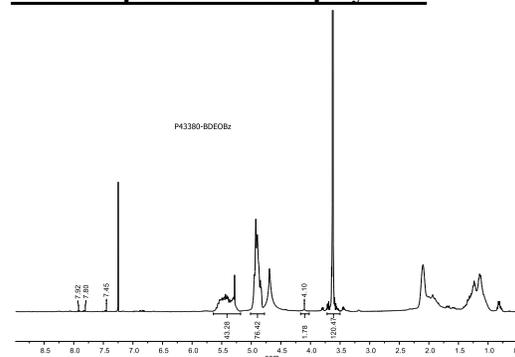
**Solubility:**

4-Hydroxy benzoic ester Poly(butadiene-b-ethylene oxide) is soluble in THF, CHCl<sub>3</sub>, and toluene. The polymer has variable solubility in hexane, methanol, ethanol and water depending on its composition.

**<sup>1</sup>H NMR spectrum of the sample:**



**<sup>1</sup>H NMR spectrum of the polymer:**



**SEC profile of the block copolymer**

