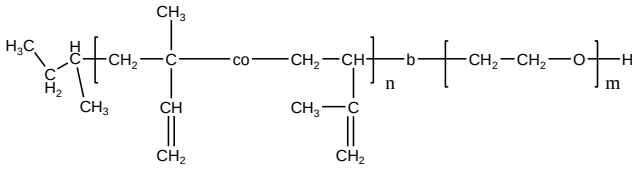
Sample Name: Poly(Isoprene-b-ethylene oxide)

Sample #: P4133A-IPEO

(poly isoprene block rich in 1,2 & 3,4 microstructure)

1,4-rich microstructure:



Composition:

Mn × 10^3 PIP-b-EO	Mw/Mn (PDI)
2.0-b-1.6	1.09

Synthesis Procedure:

Poly(Isoprene 1,4 addtion 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_4 is interesting as reported in *Macromolecules,* **32** (8), 2783 -2785, 1999. These polymers can also be successfully synthesized using different end functionalized polymers as investigated in our laboratory which are proprietary.

Characterization:

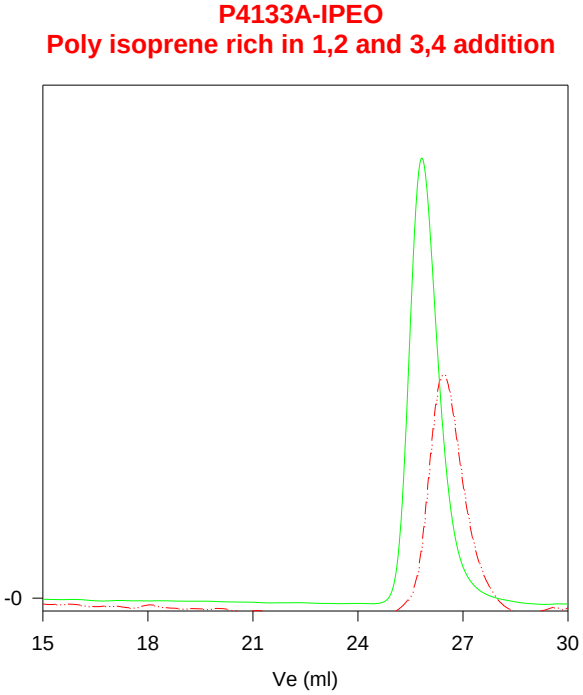
OH terminated isoprene was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ^{1}HNMR spectroscopy by comparing the peak area of the vinylic butadiene protons at about 5.4 ppm with the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

Solubility:

Poly(isoprene-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 profile of the block copolymer



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

polyisoprene (1,2 and 3,4 addition) M_n=2000, M_w=2200, PI=1.08