

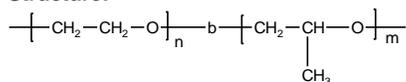
SEC of the block copolymer:

P11312-EOPO

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

Sample #: P11312-EOPO

Structure:

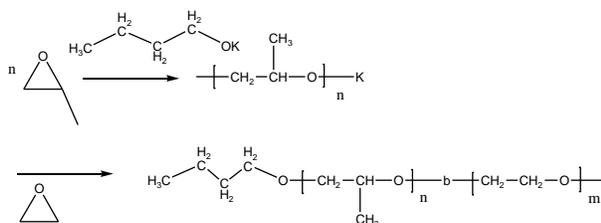


Composition:

Mn x 10 ³ PEO-b-PPO	PDI
0.45-b-1.4	1.09

Synthesis Procedure:

Poly(ethylene oxide -b- propylene oxide) is prepared by living anionic polymerization with sequence addition of ethylene oxide followed by propylene oxide or **vice versa depending on the chemical compositions**. The scheme of the reaction is illustrated below:

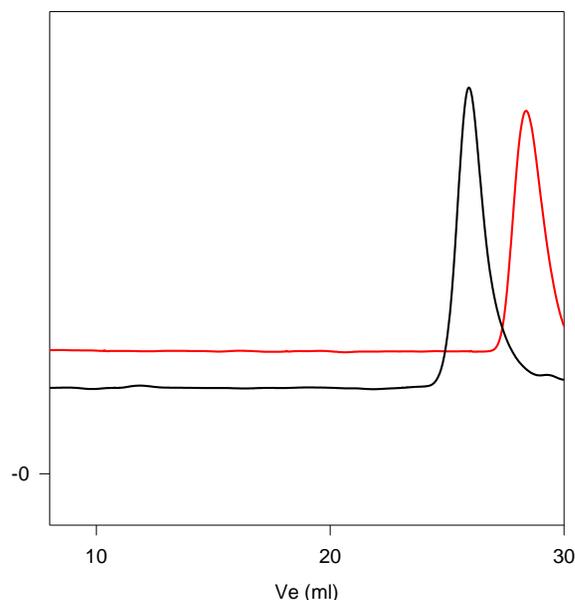
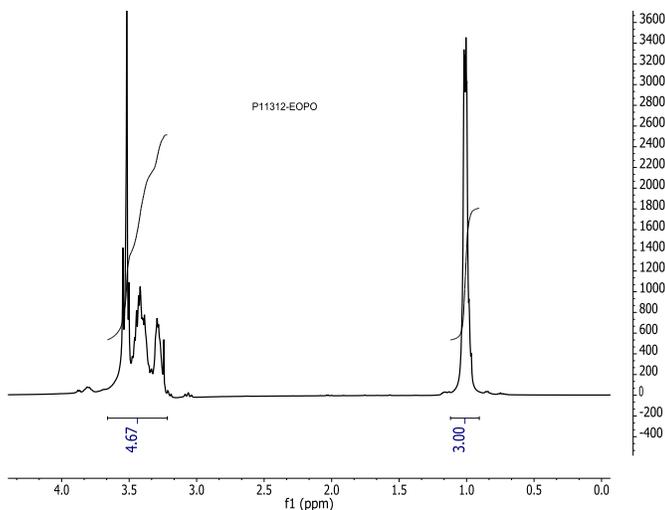


Characterization:

An aliquot of the anionic poly(ethylene oxide) block was terminated before addition of propylene oxide and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area of the ethylene oxide protons at about 3.6 ppm with the propylene oxide protons (CH(CH₃)) at about 1.08 ppm.

Solubility:

Poly(ethylene oxide -b- propylene oxide) is soluble in CHCl₃, THF and methanol ethanol. Precipitated out from hexane and ether.



Size exclusion chromatography of the product:

- Poly(ethylene glycol methyleher) : M_n=450, M_w=500, M_w/M_n=1.10
- Poly(ethylene glycol methyleher-b-PO) : M_n=450-1400 M_w/M_n=1.09