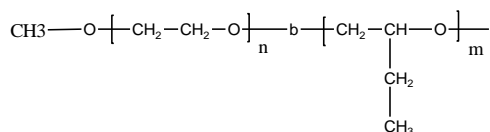


Sample Name: Poly(ethylene oxide-b-butylene oxide)

Sample #: P5809-EOBO

Structure:

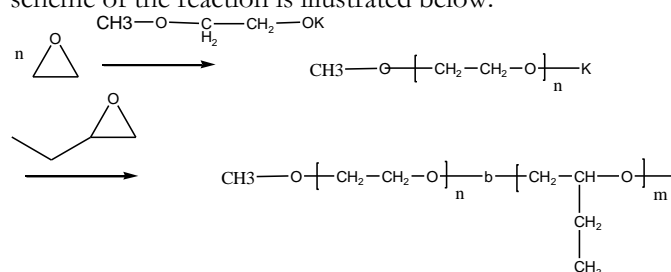


Composition:

$M_n \times 10^3$ PEO-b-PBO	PDI
0.65-b-1.15	1.10
In terms of Dp 15-b-16 units	

Synthesis Procedure:

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



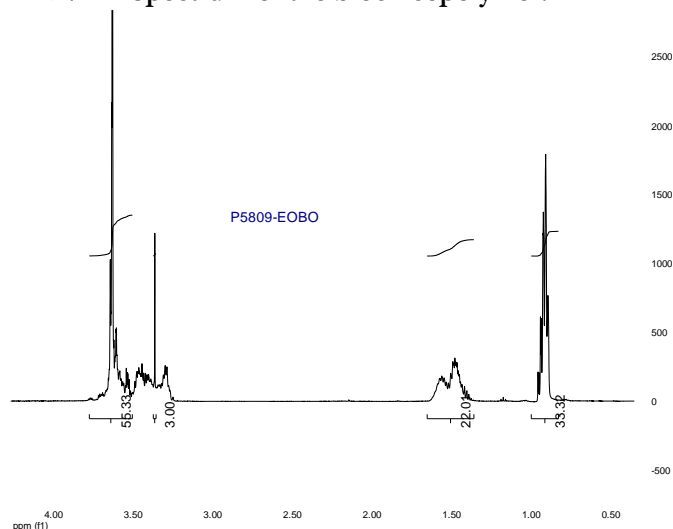
Characterization:

An aliquot of the anionic poly(ethylene oxide) block was terminated before addition of butylene 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 butylene oxide protons $-(\text{CH}_3)$ at about 1.08 ppm.

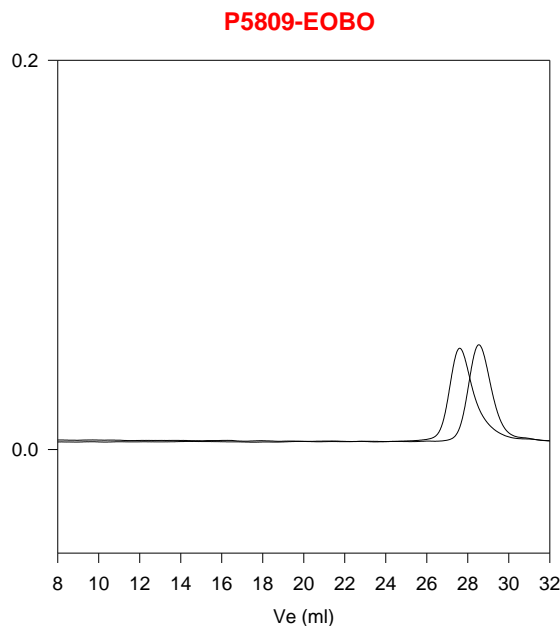
Solubility:

Poly(ethylene oxide -b- butylene oxide) is soluble in CHCl_3 , THF and methanol ethanol. The polymer is precipitated out from hexane and ether if PEO chain is enough long.

^1H -NMR Spectrum of the block copolymer:



SEC of the block copolymer:



Size exclusion chromatography of poly(Ethylene Oxide-b-butylene oxide):

- EO Block $M_n=650$, $M_w=700$, $PI=1.07$
- Block Copolymer PEO(650)-b-PBO(1150), $PI=1.10$
PEO-PBO Dp: 15-b-16 (composition by HNMR)