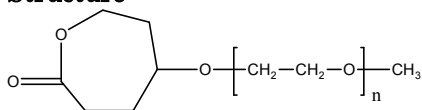


**Sample Name:**

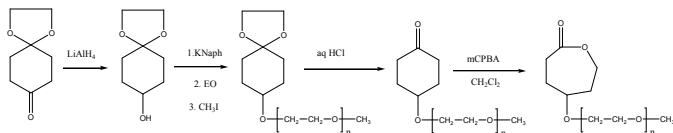
$\alpha$ -( $\gamma$ - $\epsilon$ -Caprolactone)- $\omega$ -methoxy-poly(ethylene oxide)

**Sample #: P7184-EOCLmacromer****Structure:****Composition:**

$M_n \times 10^3$ EO-CL	PDI
1.25	1.2

**Synthesis Procedure:**

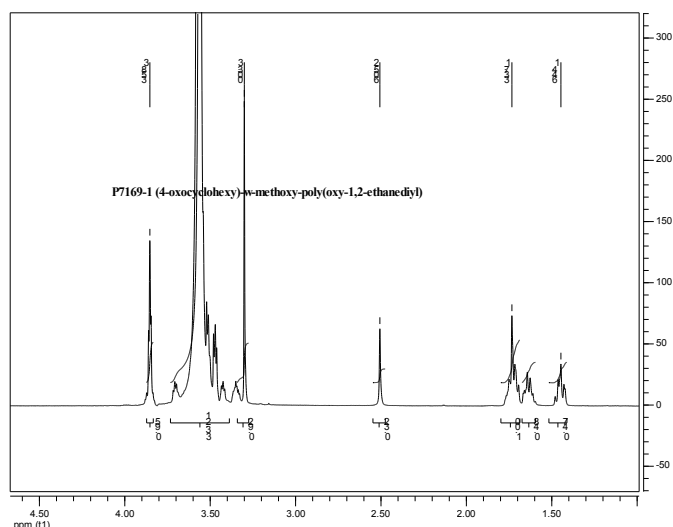
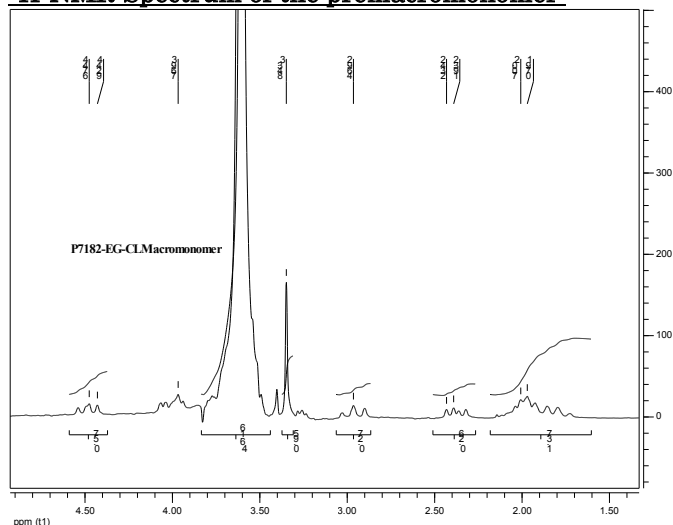
The macromonomer  $\alpha$ -4-cyclohexanone- $\omega$ -methoxy-poly(ethylene oxide) is prepared by living anionic polymerization of ethylene oxide and 1,4-dioxaspiro[4,5]decan-8-ol and then followed by a series reactions showed in the following scheme. The scheme of the reaction is illustrated below:

**Characterization:**

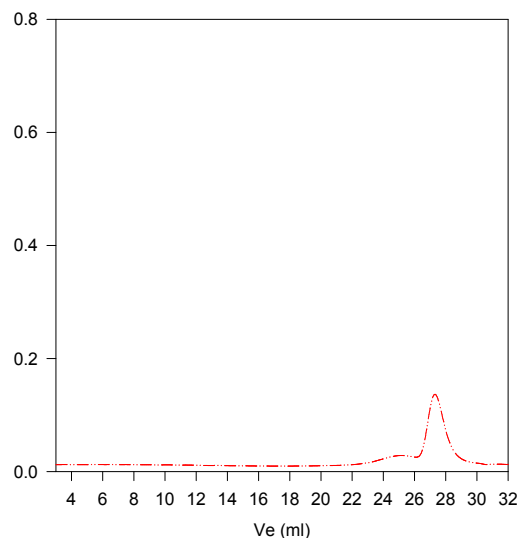
An aliquot of the anionic poly(ethylene oxide) block was terminated before addition of caprolactone and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from  $^1\text{H-NMR}$  spectroscopy by comparing the peak area of the ethylene oxide protons at about 3.6 ppm with the  $\square$ -caprolactone protons at about 4.1 ppm.

**Solubility:**

Poly(ethylene oxide)- $\beta$ - $\epsilon$ -caprolactone) is soluble in  $\text{CHCl}_3$ , THF, DMF, toluene and precipitated out from cold ethanol, diethyl ether.

 **$^1\text{H-NMR}$  Spectrum of the premacromonomer:** **$^1\text{H-NMR}$  Spectrum of the premacromonomer:****SEC of the block copolymer:**

P7184-MEO-CL macromonomer



Size exclusion chromatography result:

---  $M_n=1250$ ,  $M_w=1500$   $PI=1.2$  ( $M_n$  calculated from NMR)