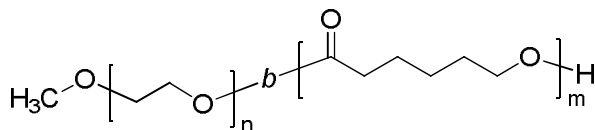


Sample Name:

**Poly(ethylene oxide-*b*- $\epsilon$ -caprolactone)**

Sample # **P18129A-EOCL**

**Structure:**



**Composition:**

Mn x 10 <sup>3</sup> (g/mol) [PEO- <i>b</i> -PCL]	M <sub>w</sub> /M <sub>n</sub>
5.0- <i>b</i> -5.0	1.18

Glass transition temperature (T <sub>g</sub> ):	-61 °C
Melting point (T <sub>m</sub> ):	53 °C

**Synthesis Procedure:**

Poly(ethylene oxide-*b*- $\epsilon$ -caprolactone) was prepared by living anionic polymerization of ethylene oxide and coordination polymerization of  $\epsilon$ -caprolactone.

**Characterization:**

An aliquot of the anionic poly(ethylene oxide) was terminated before addition of  $\epsilon$ -caprolactone and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight of the first block.

The final block copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of the poly(ethylene oxide) protons at ~3.6 ppm and poly( $\epsilon$ -caprolactone) protons at ~4.1 ppm. The polydispersity index of the diblock copolymer was determined by SEC.

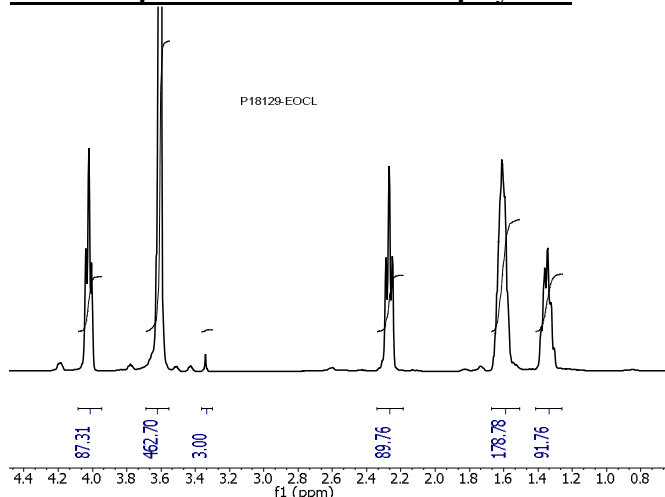
**Thermal analysis:**

Thermal analysis was performed on TA Instruments Q100 differential scanning calorimeter (DSC) under a nitrogen atmosphere. The melting point (T<sub>m</sub>) and glass transition temperature (T<sub>g</sub>) of the diblock copolymer was measured at a scan rate of 10°C/min shortly after creating thermal history of the sample.

**Solubility:**

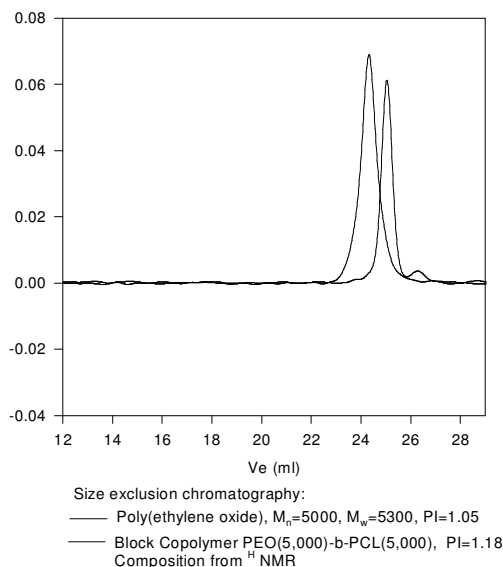
Poly(ethylene oxide-*b*- $\epsilon$ -caprolactone) is soluble in chloroform, THF, DMF, toluene; and it precipitates from cold ethanol and diethyl ether.

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



**SEC elugrams of PEO (first block) and PEO-*b*-PCL:**

**P18129A- EOCL**

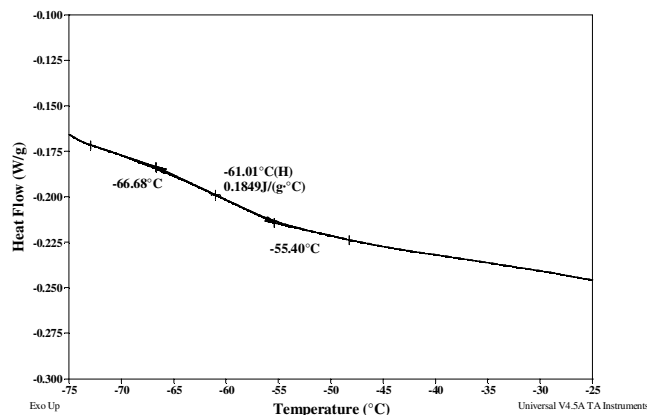


**DSC thermograms:**

Sample: P18129-A\_EOCL  
Size: 18.4000 mg

DSC

File: P18129-A\_EOCL.001



Sample: P18129-A\_EOCL  
Size: 18.4000 mg

DSC

File: P18129-A\_EOCL.001

