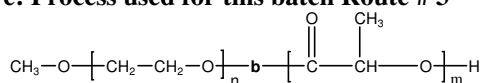


Sample Name:

**Poly(ethylene oxide -b- lactide) (DL form)**

Sample #: **P40005-EOLA (DL form)**

**Structure: Process used for this batch Route # 3**



**Composition:**

Mn x 10 <sup>3</sup> PEO-b-PLA	PDI
5.0-b-3.3	1.08

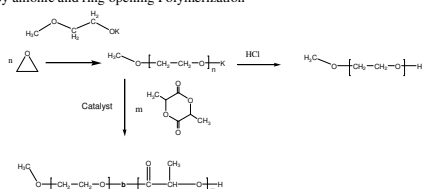
T <sub>g</sub> for PLA block	40°C
T <sub>g</sub> for PEO block	-63°C

### Synthesis Procedure:

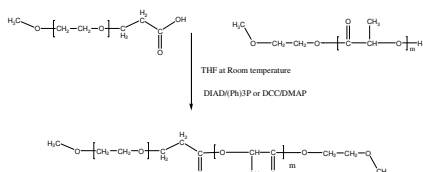
Poly(ethylene oxide-b-lactide) Can be synthesized by following routes:

#### Synthetic Routes

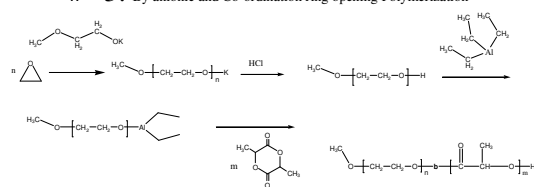
##### # 1. By anionic and ring opening Polymerization



##### # 2. By Modification of End groups and Condensation reaction



##### # 3. By anionic and Co-ordination ring opening Polymerization



### Characterization:

Polymer analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of the methoxyl protons of poly(ethylene oxide) at about a 3.6 ppm with the polylactide protons at about 5.1 and 1.55 ppm.

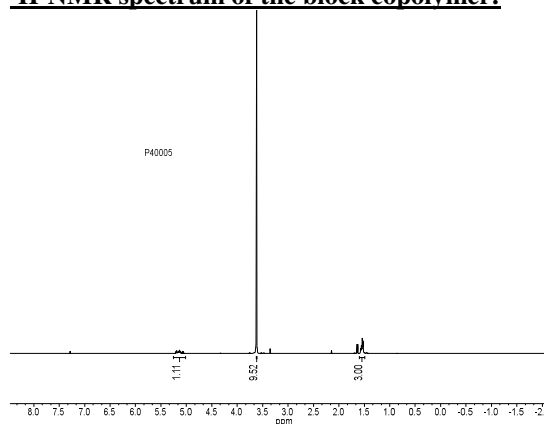
### Thermal analysis

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 20°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T<sub>g</sub>).

### Solubility:

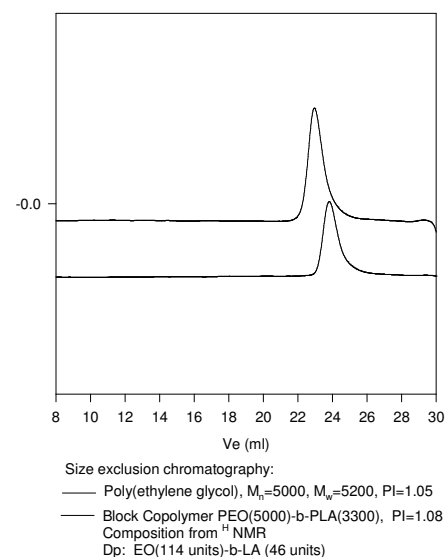
The polymer is soluble in chloroform, THF, DMF, toluene and precipitates from ethanol, ether and hexane.

### <sup>1</sup>H-NMR spectrum of the block copolymer:

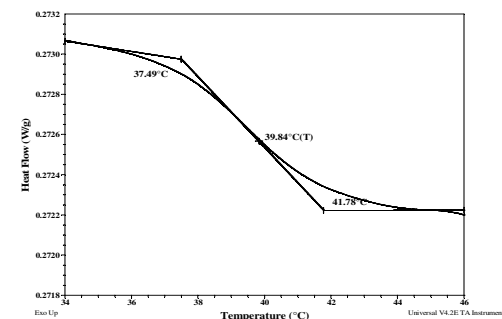


### SEC elugram of the polymer:

**P40005- EOLA (DL form)**



### DSC thermogram for the PLA block:



### DSC thermogram for PEO block:

