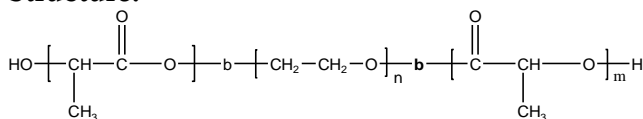


**Sample Name:**

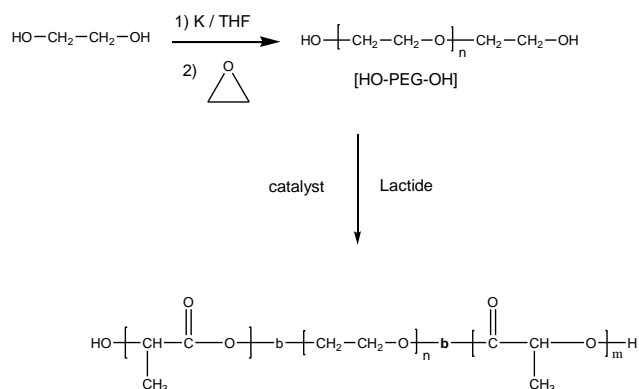
**Poly(lactide -b- ethylene oxide -b- lactide) (DL form)**

**Sample #: P8480-LAEOLA (DL form)****Structure:****Composition:**

$M_n \times 10^3$	PDI
4.5-b-8.0-b-4.5	1.08

**Synthesis Procedure:**

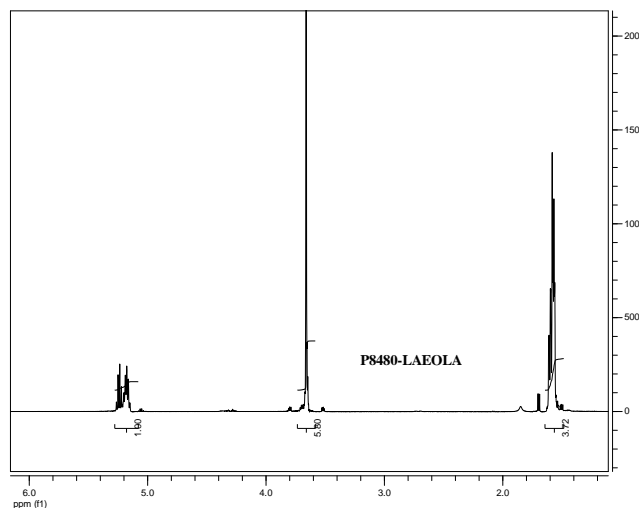
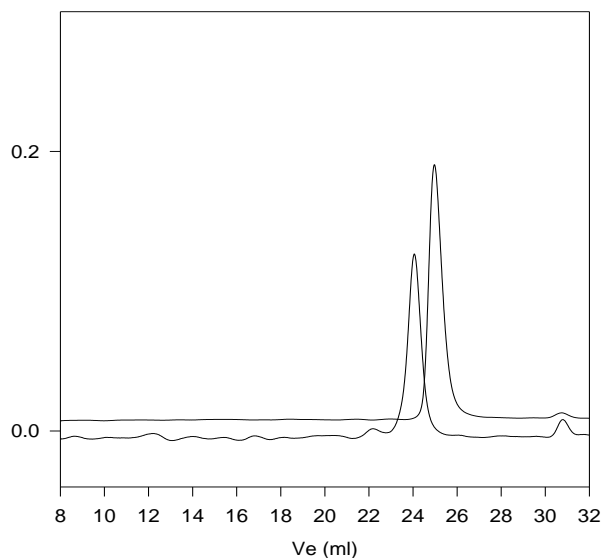
Poly(lactide-b-ethylene oxide-b lactide) was prepared by of living anionic polymerization of ethylene oxide (EO) followed by living coordination polymerization of D,L-lactide (LA) using tin catalyst. The scheme of the reaction is illustrated below:

**Characterization:**

The molecular weight and polydispersity index of the poly(ethylene oxide) block was determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. The composition of the lactide ABA triblock copolymer was determined using  $^1\text{H}$ -NMR spectroscopy by comparing the integration of the lactide peaks (5.2ppm) with that of the ethylene oxide peaks (3.6ppm).

**Solubility:**

The polymer is soluble in THF, chloroform, DMF and toluene, but not soluble in hexane.

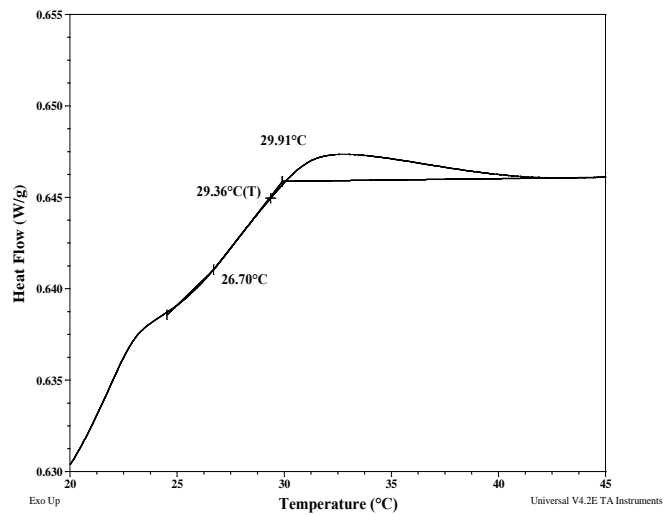
**NMR of Sample:****SEC of Sample:****P8480- LAEOLA (DL form)****Size exclusion chromatography:**

— Poly(ethylene glycol) diol,  $M_n=8000$ ,  $M_w=8400$ ,  $PI=1.05$   
 — Block Copolymer PLA(4500)-PEO(8000)-b-PLA(4500),  $PI=1.08$   
 Composition from  $^1\text{H}$  NMR  
 Dp: LA( 62)-EO(182)-b-LA( 62)

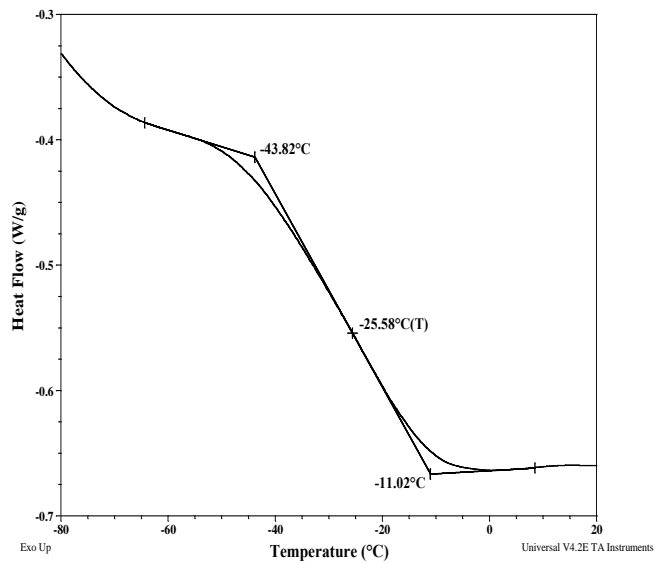
Thermal analysis of the sample# P8480-LAEOLA

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°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 ( $T_g$ ).

Thermogram for PLA block:



For PEO block



Thermal analysis results at a glance

For PLA block (DL)		
$T_g$ : 29°C	$T_m$ : -	$T_c$ : -
For PEO block		
$T_g$ : -26°C	$T_m$ : 50°C	$T_c$ : -

Melting curve for the sample

The melting temperature ( $T_m$ ) was taken as the maximum of the endothermic peak.

Melting curve for PEO block

