

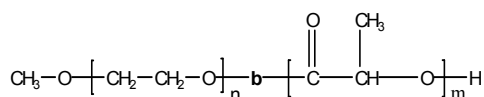
#### SEC of the block copolymer:

Sample Name:

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

Sample #: **P5117B-EOLA (DL form)**

**Structure:**



**Composition:**

$M_n \times 10^3$ PEO-b-PLA	PDI
0.7-b-5.00	1.30

**Synthesis Procedure:**

Poly(ethylene oxide -b- lactide) is prepared by living anionic polymerization of ethylene oxide and coordination polymerization of lactide with Tin octoate as catalyst.

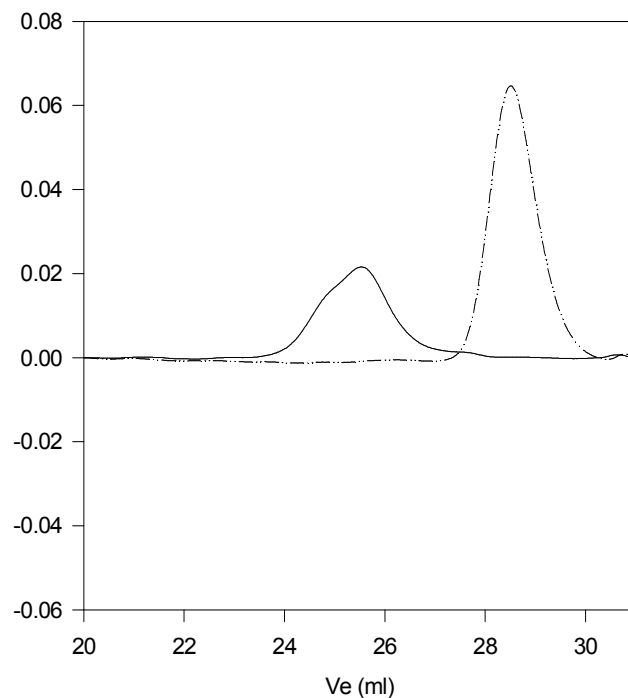
**Characterization:**

An aliquot of the anionic poly(ethylene oxide) block was terminated before addition of lactide 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 methoxyl protons of poly(ethylene oxide) at about a 3.6 ppm with the polylactide protons at about 5.1 and 1.55 ppm.

**Solubility:**

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

**P5117B- EOLA** (DL -lactide)



Size exclusion chromatography:

----- Poly(ethylene oxide),  $M_n=700$ ,  $M_w=760$ ,  $PI=1.09$

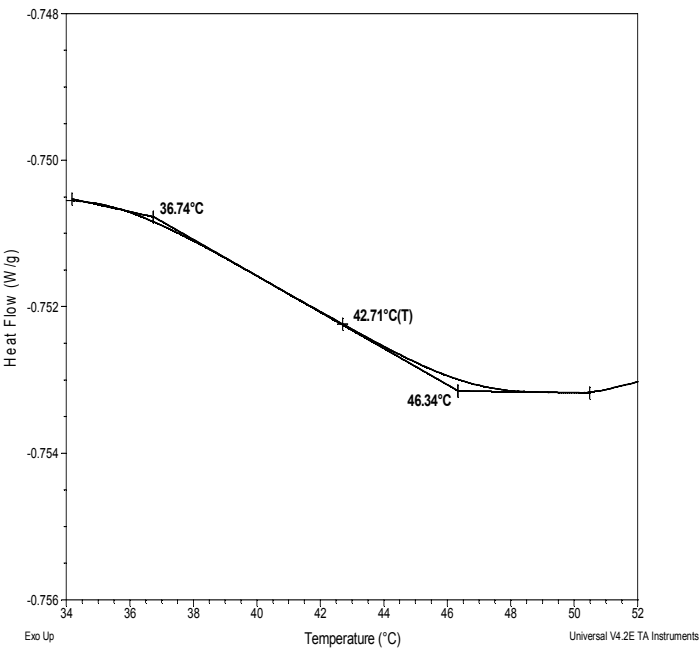
Thermal analysis of the sample# P5117B-EOLA

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 ( $T_g$ ).

Thermal analysis results at a glance

For PLA block		
$T_g$ : 43°C	$T_m$ : Not observed	$T_c$ : Not observed
For PEO block		
$T_g$ : -64°C	$T_m$ : Not observed	$T_c$ : Not observed

Thermogram for PLA block:



For PEO block

