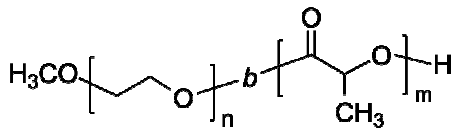


Sample Name: Poly(ethylene oxide)-*b*-poly(D,L-lactide)

Sample #: P40629-EOLA (DL form)



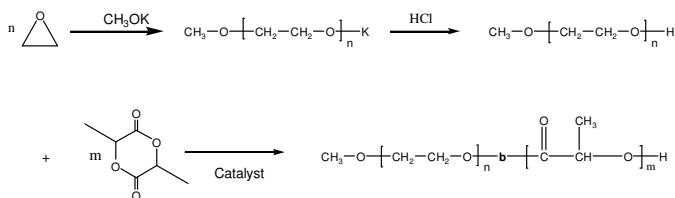
Composition:

$M_n \times 10^3$ (g/mol) [PEO- <i>b</i> -PLA]	M_w/M_n
10.5- <i>b</i> -8.0	1.05

Glass transition temperature, T_g (PEO block):	-41 °C
Cold crystallization temperature, $T_{c.cr}$:	-14 °C
Melting point, T_m (PEO block)*:	57 °C
Crystallization temperature, T_{cr} :	11 °C
* T_g of PLA block overlaps with T_m of PEO block.	

Synthesis procedure:

Scheme of poly(ethylene oxide)-*b*-lactide synthesis is shown below:



Characterization:

To determine the molecular weight of the first block, an aliquot of anionic poly(ethylene oxide) block was terminated before addition the lactide monomer, and analyzed by size exclusion chromatography (SEC). The final block copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area of the methoxy-protons of poly(ethylene oxide) at *ca.* 3.6 ppm and the poly(lactide) protons at *ca.* 5.1 and 1.55 ppm. The polydispersity index (M_w/M_n) of the diblock copolymer was obtained by SEC.

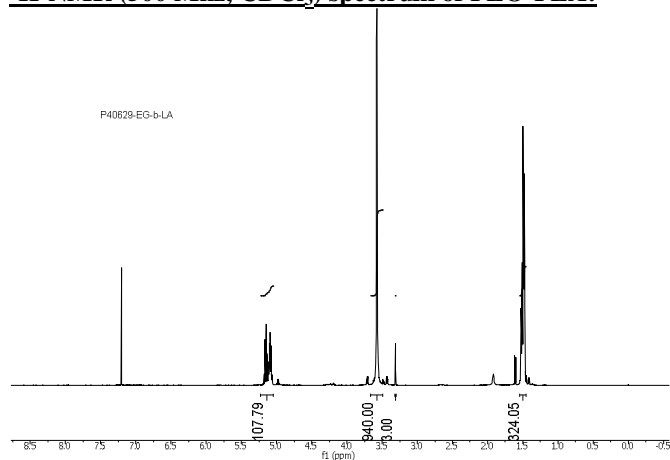
Thermal analysis:

Thermal analysis was performed on TA Instruments Q100 differential scanning calorimeter (DSC) under a nitrogen atmosphere. The glass transition temperature (T_g) of the polymer was measured at a scan rate of 10°C/min shortly after creating thermal history of the sample.

Solubility:

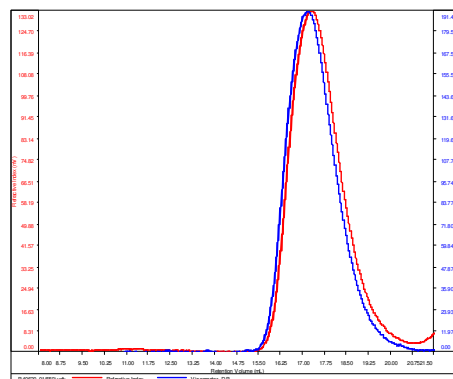
The polymer is soluble in chloroform, THF, DMF, toluene; and it precipitates from ethanol, ether, and hexanes.

¹H-NMR (500 Mhz, CDCl₃) spectrum of PEO-PLA:



SEC elugram of the PEO (first block):

P40620-EGOCH3	
Conc	45.5277
dn/dc	0.0440
Solvent	DMF w 0.023M LiBr
Flow Rate	0.7000
Method	PS80k-Mey2017-0000.vcm

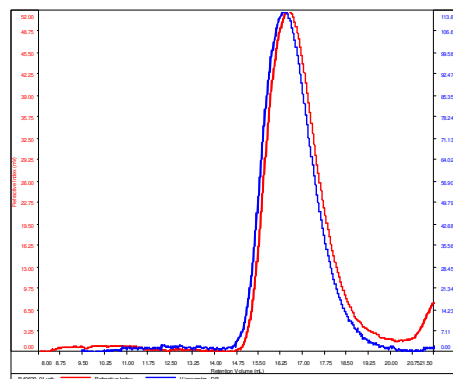


Sample	Mn	Mw	Mp	Mw/Mn	IV
P40620_01(550).vdt	10,372	10,707	10,134	1.032	0.0925

SEC elugram of the PEO-PLA diblock copolymer:

P40429-EOLA (DL)

Conc	22.6716
dn/dc	0.0350
Solvent	DMF w 0.023M LiBr
Flow Rate	0.7000
Method	PS80k-Mey2017-0000.vcm



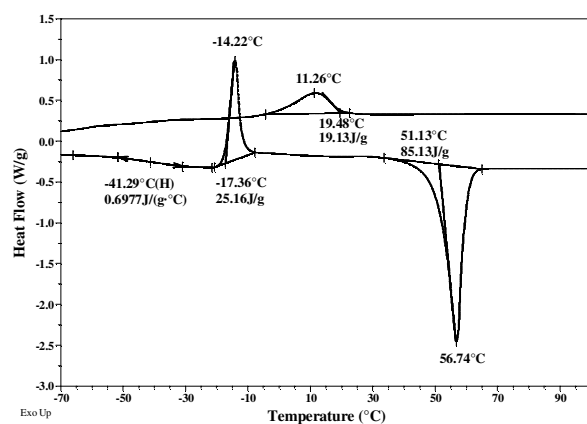
Sample	Mn	Mw	Mp	Mw/Mn	IV
P40629_01.vdt	18,580	19,192	18,556	1.033	0.1136

DSC thermograms of the polymer

(2nd cooling scan [top] and 3rd heating scan [bottom], 10°C/min):

Sample: P40629-EOLA (DL-form)
Size: 11.9000 mg

File: P40629_EO-LA.001



DSC thermograms of the polymer (3rd heating scan, 10°C/min):

Sample: P40629-EOLA (DL-form)
Size: 11.9000 mg

File: P40629_EO-LA.001

