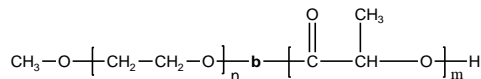


Sample Name:

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

Sample #: P14435-EOLA (DL form)

Structure: Process used for this batch Route # 3



Composition:

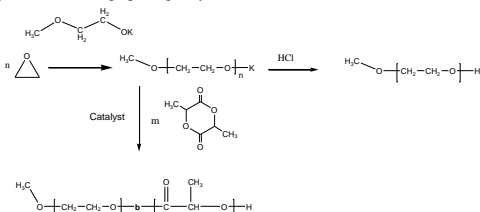
Mn x 10 ³ PEO-b-PLA	PDI
2.0-b-29.0	1.28
T _g for PLA block	40°C
T _g for PEO block	-63°C

Synthesis Procedure:

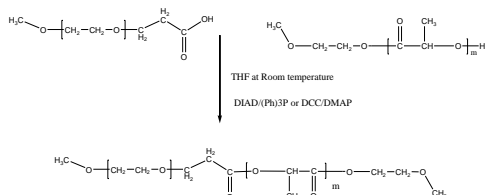
Poly(ethylene oxide -b- lactide) Can be synthesized by following routes:

Synthetic Routes

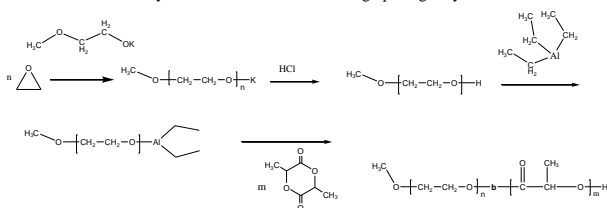
1. By anionic and ring opening Polymerization



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 ¹H-NMR spectroscopy by comparing the peak area of the methoxy protons of poly(ethylene oxide) at about 3.6 ppm with the polylactide protons at about 5.1 and 1.55 ppm.

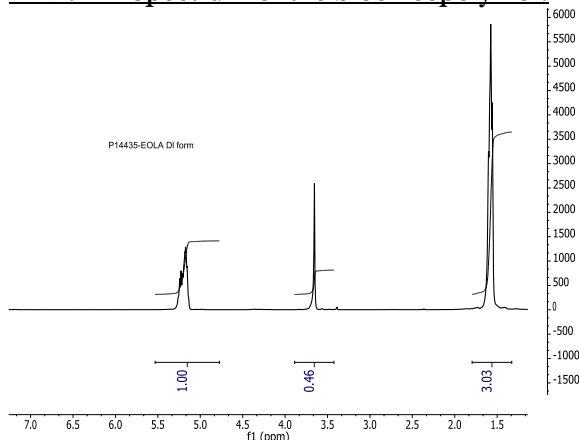
Thermal analysis

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_g).

Solubility:

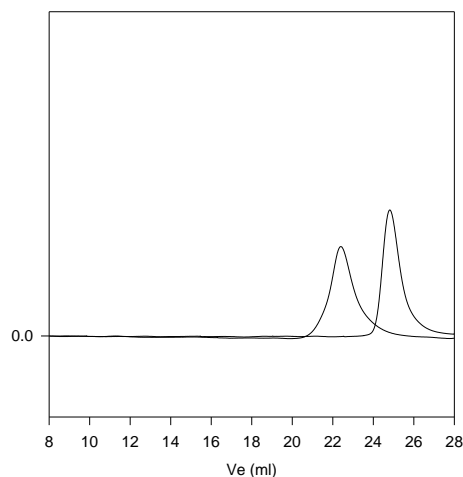
The polymer is soluble in chloroform, THF, DMF, toluene and precipitates from ethanol, ether and hexane.

¹H-NMR Spectrum of the block copolymer:



SEC profile of the Polymer:

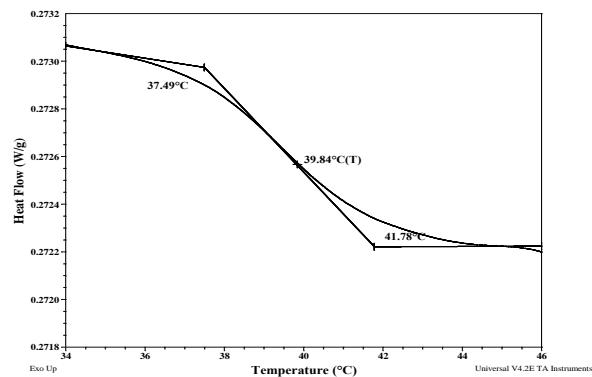
P14435- EOLA (DL form)



Size exclusion chromatography:

— Poly(ethylene glycol), M_n=2000, M_w=2200, PI=1.09
— Block Copolymer PEO(2000)-b-PLA(29,000), PI=1.28
Composition from ¹H NMR

DSC thermogram for the PLA block:



DSC thermogram for PEO block:

