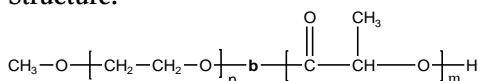


Poly(ethylene oxide -b- lactide) (DL form)

Structure:



Composition:

Mn x 10 ³ PEO-b-PLA	PDI
0.55-b-6.8	1.2
T _g of PEO block: -67°C	T _g of PLA block: 30°C

Poly(ethylene oxide -b- lactide) is prepared by living anionic polymerization of ethylene oxide and coordination polymerization of lactide.

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 ^1H -NMR spectroscopy by comparing the peak area of the ethylene oxide protons at about 3.6 ppm with the lactide protons at about 5.1 ppm.

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).

Poly(ethylene oxide -b- lactide) is soluble in chloroform, THF, DMF, toluene and precipitates from ethanol, ether and hexane.

Heat Flow (W/g)

Temperature (°C)

25.99°C

29.64°C(T)


33.52°C

Exo Up

Universal V4.2E TA Instruments

P7074-EOLA (DL form)

Chemical Shift (ppm)	Integration
7.258	-
5.154	0.95
5.130	-
5.120	0.91
3.631	0.01
3.486	0.91
1.578	-
1.466	-
1.258	0.91
1.238	-

 Poly(ethylene glycol), $M_n=550$, $M_w=660$, $PI=1.2$
 Block Copolymer PEO(550)-b-PLA(6800), $PI=1.2$
 Composition from 1H NMR
 Dp: EO(12 units)-b-LA (95 units)