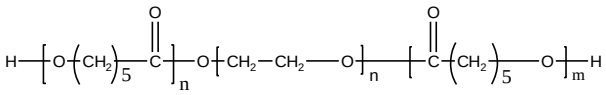
Sample Name:
Poly(ε-caprolactone - ethylene oxide -b- ε -caprolactone)

Sample #: P8737C- CLEOCL

Structure:

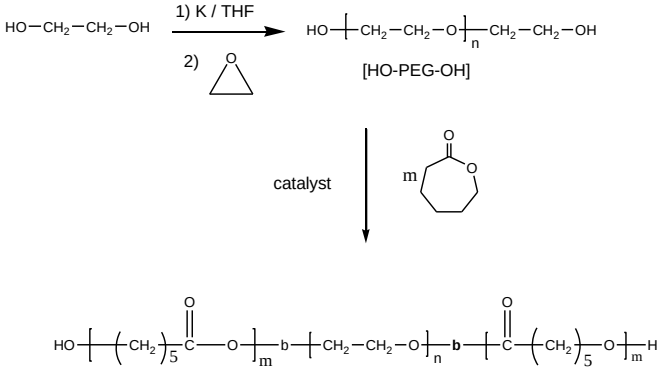


Composition:

Mn x 10^3 PCL-b-PEO-b-PCL	PDI
6.5-b-10.0-b-6.5	1.6

Synthesis Procedure:

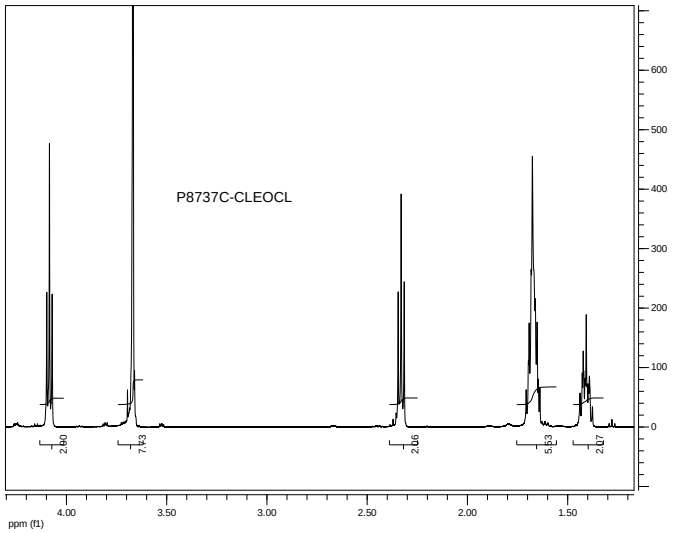
The polymer is prepared by living anionic polymerization of ethylene oxide and coordination polymerization of **ε**-caprolactone. The scheme of the reaction is illustrated below:



Characterization:
An aliquot of the anionic poly(ethylene oxide) block was terminated before addition of caprolactone 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}H-NMR spectroscopy by comparing the peak area of the ethylene oxide protons at about 3.6 ppm with the **ε**-caprolactone protons at about 4.1 ppm.

Solubility:
Poly(**ε** -caprolactone - ethylene oxide -b- **ε** -caprolactone) is soluble in CHCl3, THF, DMF, toluene and precipitated out from cold ethanol, diethyl ether.

^{1}H-NMR Spectrum of the block copolymer:



Thermal analysis of # P8737C-CLEOCL sample

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 15^{o}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).

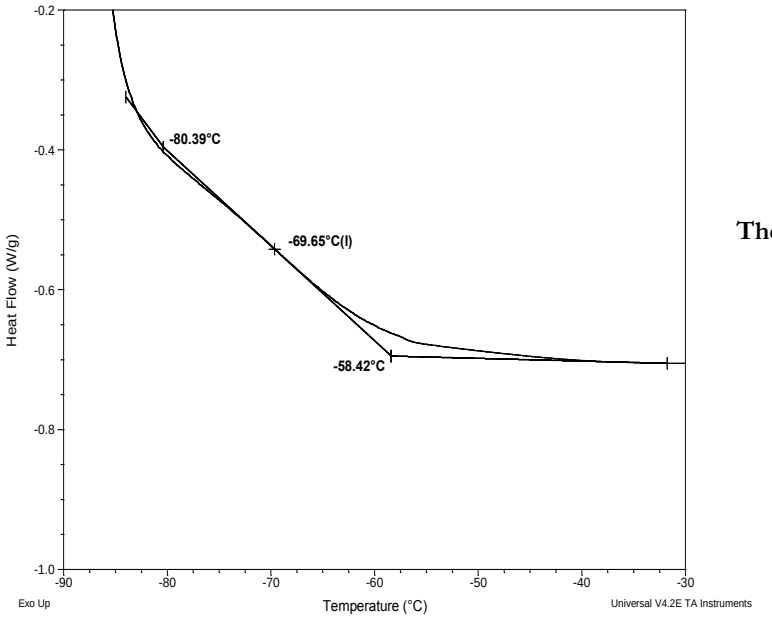
Melting and crystallization curve for the sample

The melting temperature (T_m) was taken as the maximum of the endothermic peak where as the crystallization temperature (T_c) was considered as the minimum of the exothermic peak.

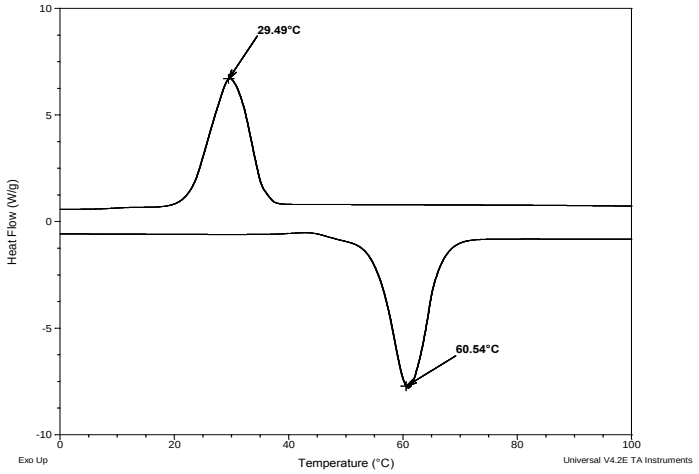
Thermal analysis results at a glance

Sample	T_m (^{o}C)	T_c (^{o}C)	T_g (^{o}C)
EO	61	29	-65
ε-CL	55	29	-69
CLEOCL	54 and 59	26	-70

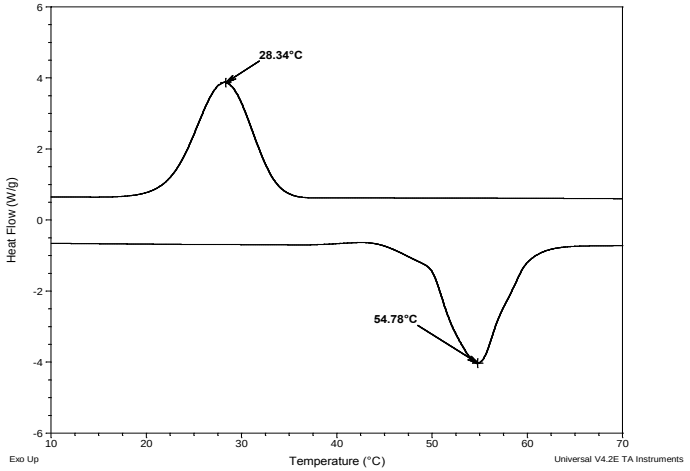
Thermogram for the sample



Thermogram of poly (ethylene glycol) methyl ether (Mn≈5000)



Thermogram of ε-caprolactone (Mn≈8000)



Thermogram of #8737C EOCL sample