

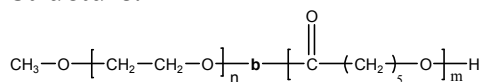
¹H-NMR Spectrum of the block copolymer:

Sample Name:

Poly(propylene oxide -b- ε -caprolactone)

Sample #: P5068- POCL

Structure:



Composition:

$M_n \times 10^3$ PPO-b-PCL	PDI
3.9-b-14.2	1.19

Synthesis Procedure:

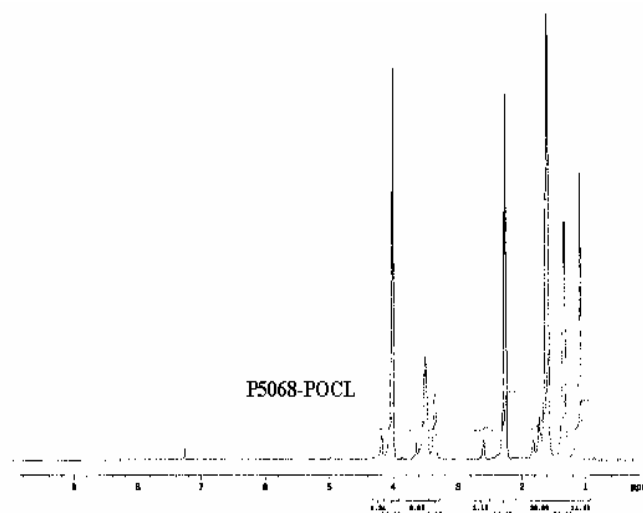
Poly(propylene oxide -b- ε -caprolactone) is prepared by living anionic polymerization of propylene oxide and coordination polymerization of ε -caprolactone.

Characterization:

An aliquot of the anionic poly(propylene 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 ¹H-NMR spectroscopy by comparing the peak area of the propylene oxide protons with the ε -caprolactone protons.

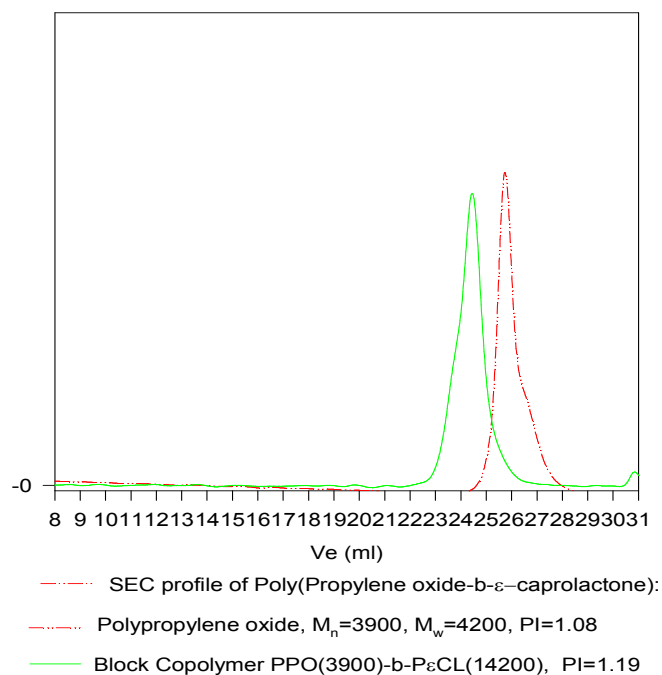
Solubility:

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



SEC of the block copolymer:

P5068-POCL



Thermal analysis of the sample# P5068- POCL

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°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).

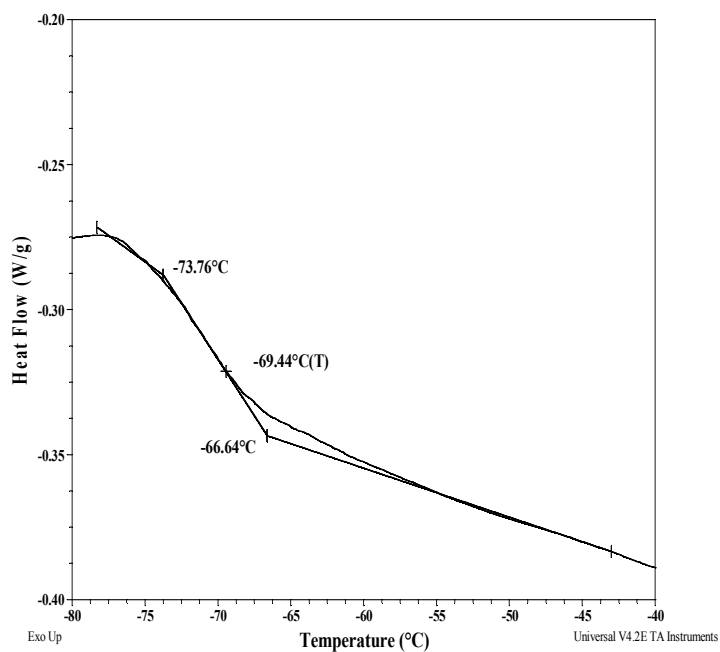
Melting and crystallization curve for the sample

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.

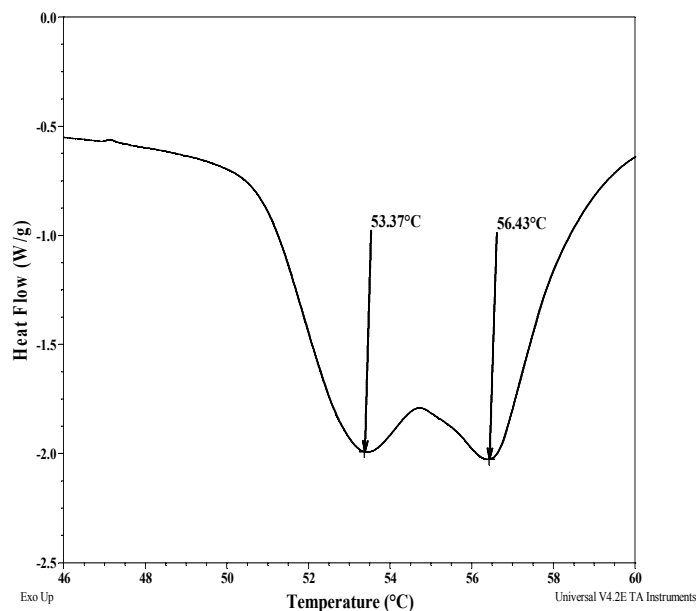
Thermal analysis results for the block polymer at a glance:

Sample	T_m (°C)	T_c (°C)	T_g (°C)
EO			
ϵ -CL	53 & 56	25	-69

Thermogram for the sample



Melting curve for CL block:



Crystallization curve for CL block:

