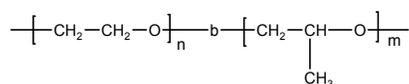


Sample Name: Poly(ethylene oxide -b- propylene oxide)

Sample #: P9184-EOPO

Structure:



Composition:

$M_n \times 10^3$ PEO-b-PPO	PDI
2.0-b-1.8	1.2

Synthesis Procedure:

Poly(ethylene oxide -b- propylene oxide) is prepared by living anionic polymerization with sequence addition of monomer.

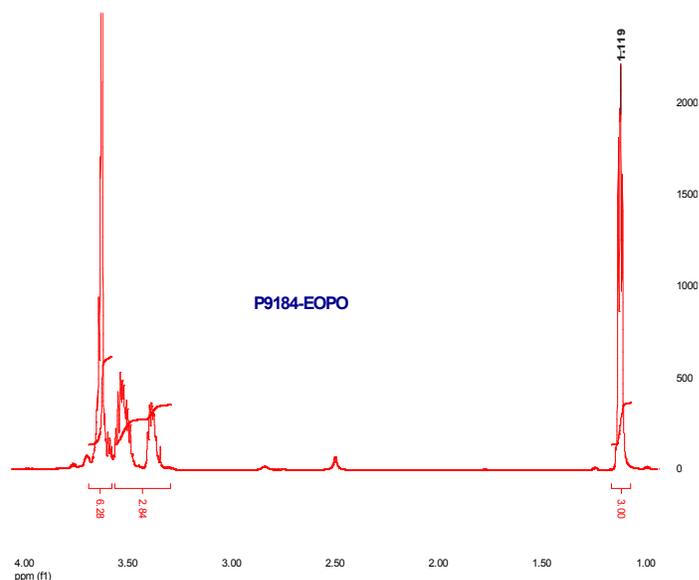
Characterization:

An aliquot of the anionic poly(ethylene oxide) block was terminated before addition of propylene oxide and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from $^1\text{H-NMR}$ spectroscopy by comparing the peak area of the ethylene oxide protons at about 3.6 ppm with the propylene oxide protons (C(CH₃)) at about 1.1 ppm.

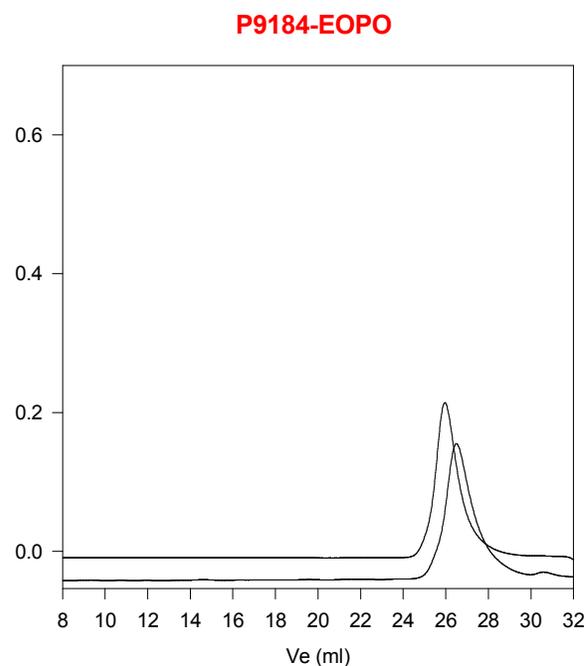
Solubility:

Poly(ethylene oxide -b- propylene oxide) is soluble in CHCl₃, THF and methanol ethanol. Precipitated out from hexane and ether.

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



SEC of the block copolymer:



Size exclusion chromatography of poly(Popylene oxide-b-Ethylene Oxide):

- PPO Block $M_n=1800$, $M_w=2200$, $PI=1.22$
- Block Copolymer PPO(1800)-b-PEO(2000), $PI=1.20$
PEOPO: 2000-b-1800

Thermal analysis of the sample# P9184-EOPO

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).

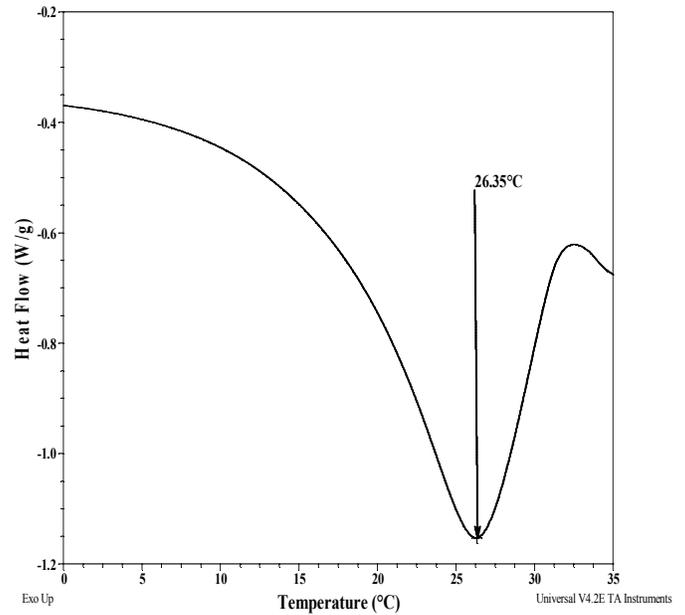
Melting and crystallization curve for the sample

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

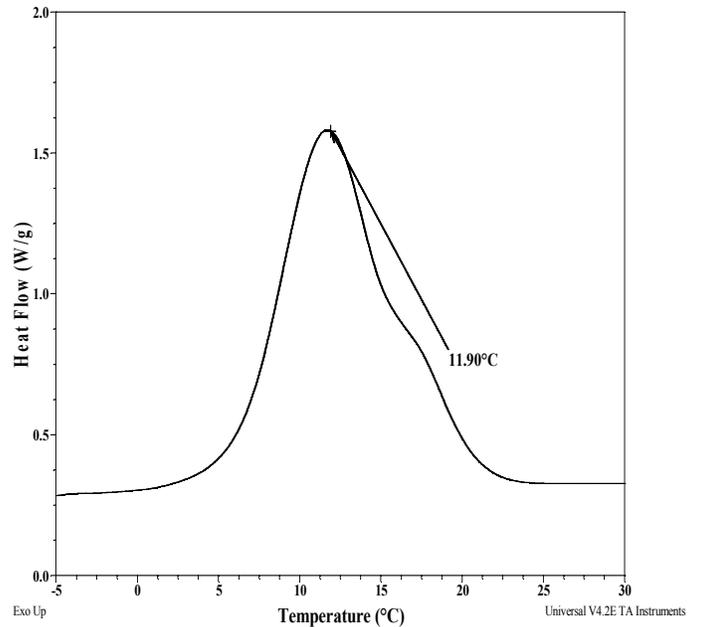
Thermal analysis results at a glance

Sample	T_m (°C)	T_c (°C)	T_g (°C)
EO block	26	12	Not distinct
PO block	-	-	-74

Melting curve for EO block:



Crystallization curve for EO block:



Thermogram for PO block

