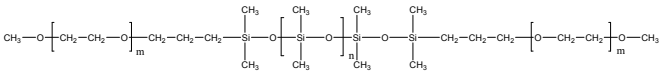
Sample Name: **Poly(ethylene oxide-b-dimethyl siloxane -b- ethylene oxide)**

Sample #: P7300-EODMSEO

Structure:

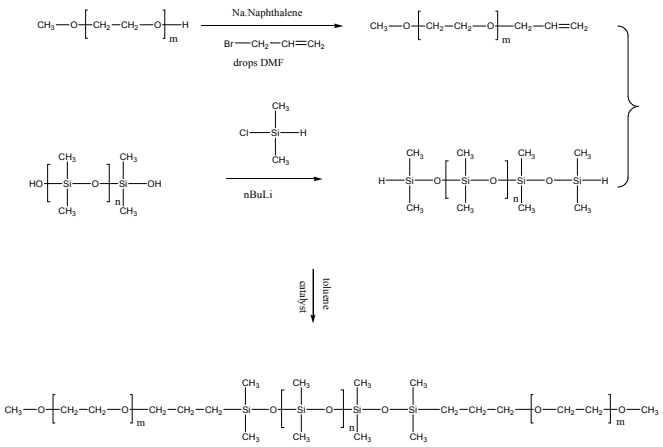


Composition:

Mn x 10^3 PEO-b-PDMS-b-PEO (k)	PDI
2.0-2.0-2.0	1.3(bimodal)

Synthesis Procedure:

The polymer is prepared by hydrosililation reaction of ally PEO and disilane terminated PDMS using Pt catalyst. The reaction scheme is shown below:



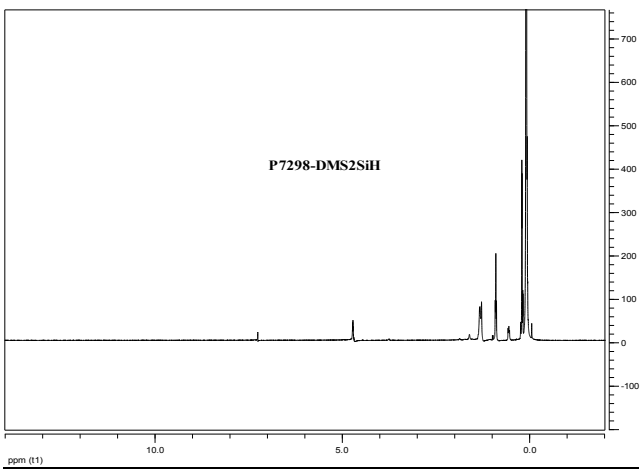
Characterization:

The polymer was analyzed by size exclusion chromatography (SEC) and NMR 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 siloxane protons at about 0.08 ppm with the peak area of ethylene oxide protons at about 3.4ppm. The hydrosylation reaction is monitored by FTIR, the disappearance of SiH at 2125 cm-1.

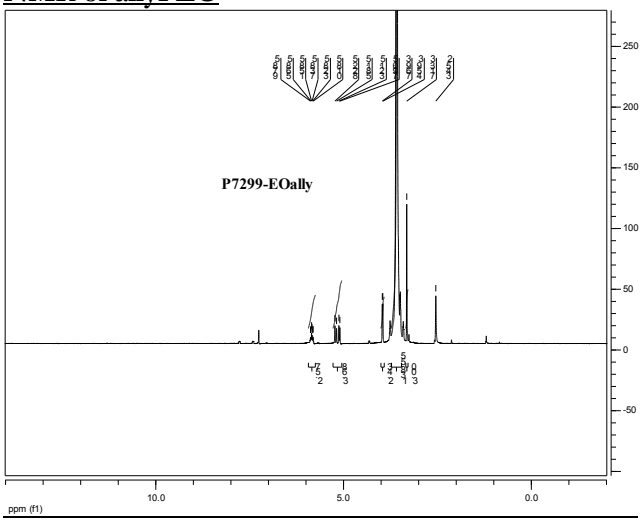
Solubility:

The polymer is soluble in THF, not soluble in MeOH, ether, hexane.

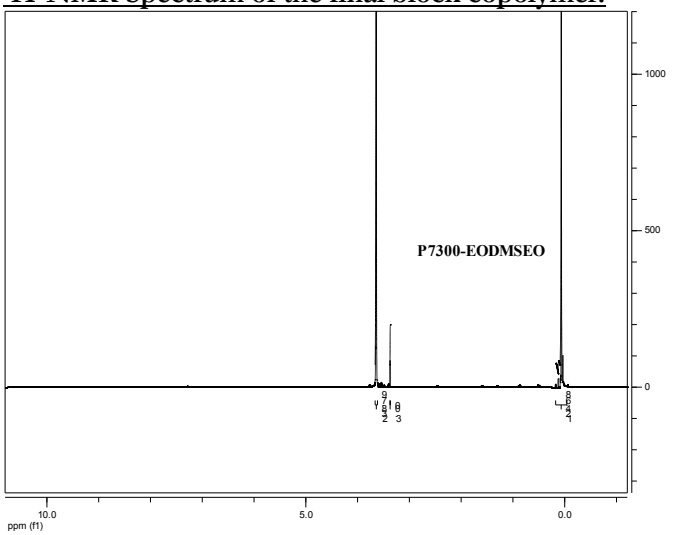
NMR of PDMS2SiH



NMR of allyPEO

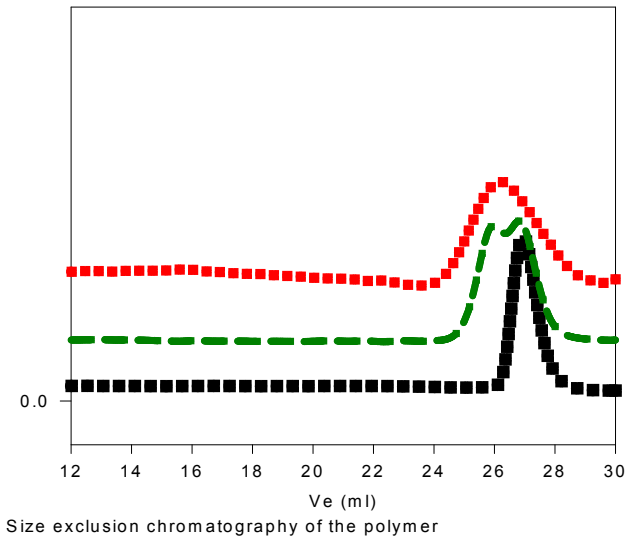


^{1}H-NMR Spectrum of the final block copolymer:



SEC of the polymer

P7300-EODMSEO



Size exclusion chromatography of the polymer

PDMS-2SiH: Mn=2000, Mw=2400, PI=1.2

Ally PEO, Mn=2000, Mw=2200, PI=1.09

Final block copolymer: PEO(2000)-b-PDMS(2000)-b-PEO(2000), PI=1.3 Composition from ^{H}NMR

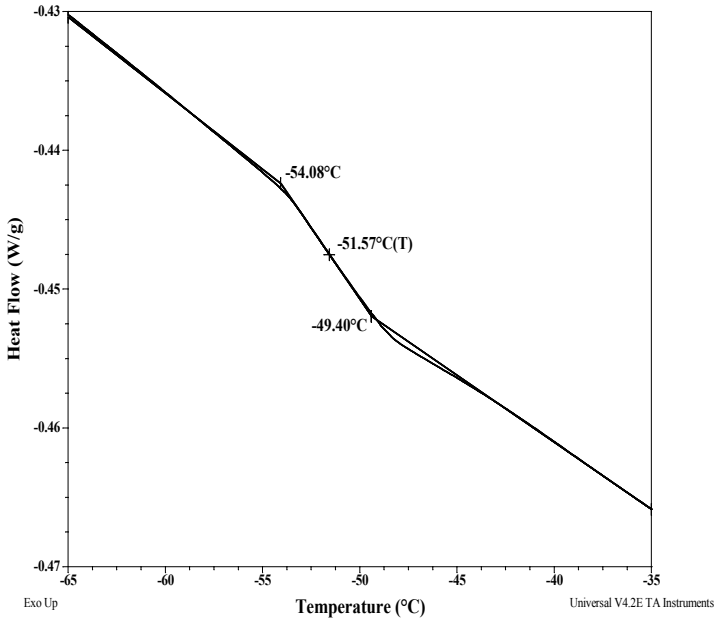
Thermal analysis of the sample# P7300-EODMSEO

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).

Thermal analysis results at a glance

For PDMS block		
T_g: Not found (-127°C lit. value)	T_m: -	T_c: -
For PEO block		
T_g: -52°C	T_m: 53°C	T_c: 23°C

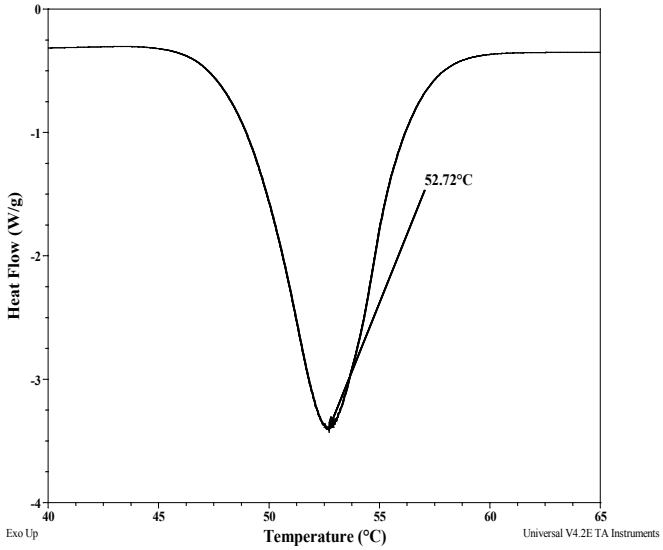
Thermogram for PEO block:



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.

Melting curve for PEO block:



Crystallization curve For PEO block: