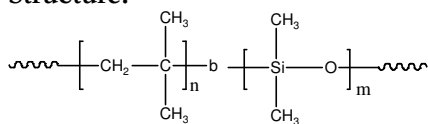


Sample Name: Poly(isobutylene-b-dimethylsiloxane)

Sample #: P3069-IbDMS

Structure:

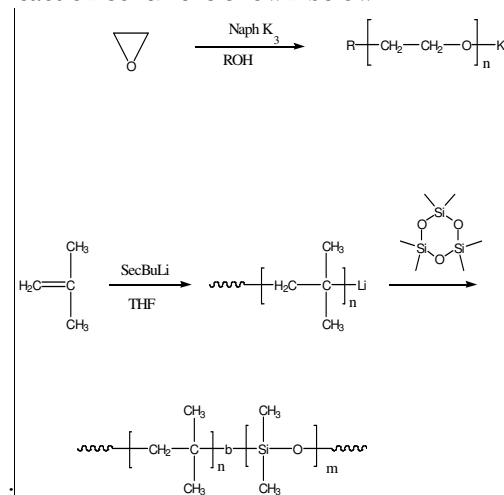


Composition:

$M_n \times 10^3$ Ib-b-DMS	M_w/M_n (PDI)
6.5-b-13.5	1.29
T_g for Ib block:	-72°C
T_g & T_m for DMS block:	-127 (lit. value) & -43°C

Synthesis Procedure:

Poly(isobutylene-b-dimethylsiloxane) is prepared by living anionic polymerization addition of isobutylene followed coordination polymerization of dimethylsiloxane. The reaction scheme is shown below



Characterization:

An aliquot of the anionic poly(isobutylene) block was terminated before addition of dimethylsiloxane 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 isobutylene protons with the dimethylsiloxane protons. Block copolymer PDI is determined by SEC.

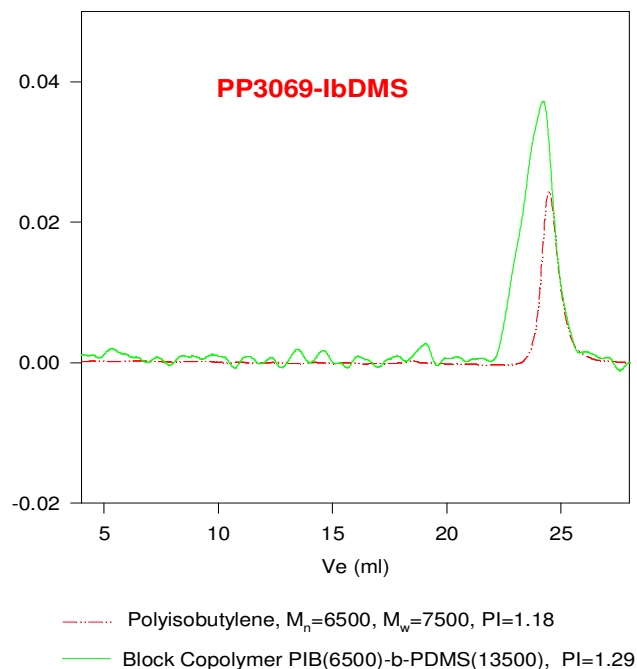
Thermal analysis of the sample:

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). The melting temperature (T_m) was taken as the maximum of the endothermic peak.

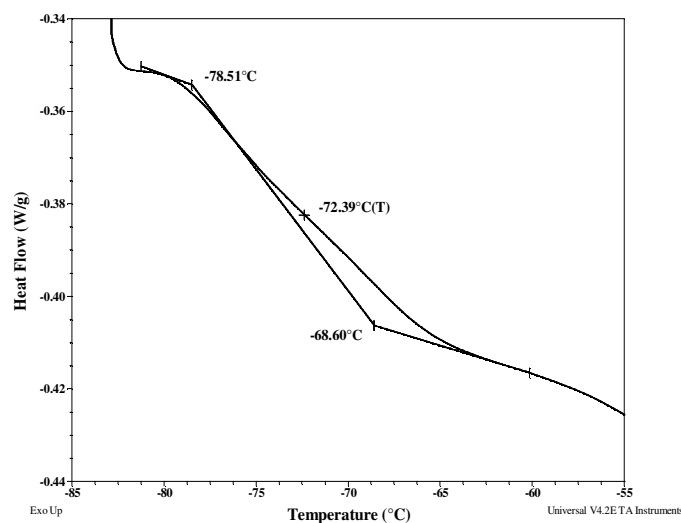
Solubility:

Poly(isobutylene-b-dimethylsiloxane) is soluble in THF, toluene and hexane.

SEC profile of the block copolymer:



DSC thermogram for Ib block:



Melting curve for DMS block:

