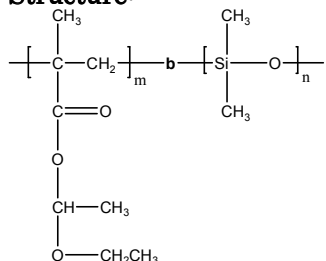


Sample Name: Poly(dimethyl siloxane-b-ethoxy ethyl methacrylate)

Sample # P5720b-DMSEtOEtMA

Structure:

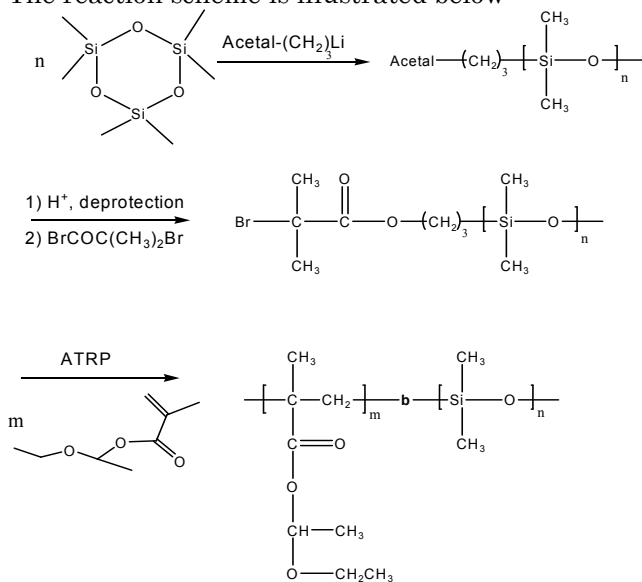


Composition:

Mn x 10 ³ DMS-b-EtOEtMA	Mw/Mn (PDI)
8.0-b-10.5	1.3

Synthesis Procedure:

Poly(dimethylsiloxane-b-ethoxy ethyl methacrylate) is prepared by living anionic polymerization of hexamethyl cyclotrisiloxane followed by controlled radical polymerization of 1-ethoxyethyl methacrylate. The reaction scheme is illustrated below:



Characterization:

An aliquot of the anionic poly(dimethyl siloxane) block was terminated before addition of 1-ethoxyethyl methacrylate 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 dimethyl siloxane protons near 0 ppm with the ethoxyethyl methacrylate protons at about 3.7-3.8 ppm (OCH₂-). Block copolymer PDI is determined by SEC.

Solubility:

Poly(dimethylsiloxane-b-ethoxy ethyl methacrylate) is soluble in THF and in CHCl₃ it swells.

Figure: ¹H NMR spectrum of the sample

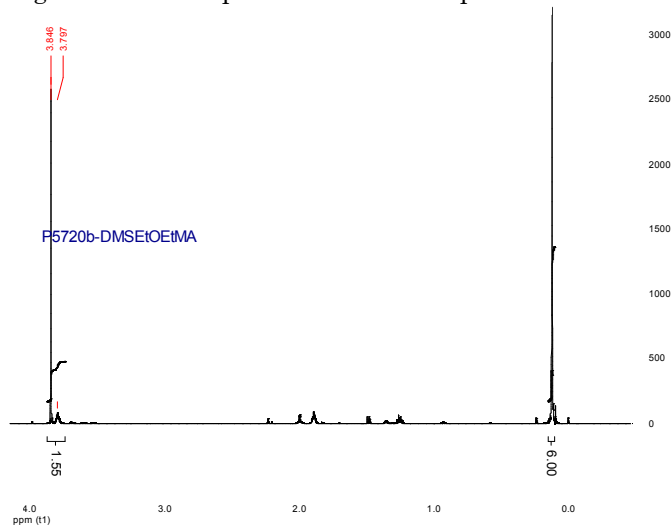
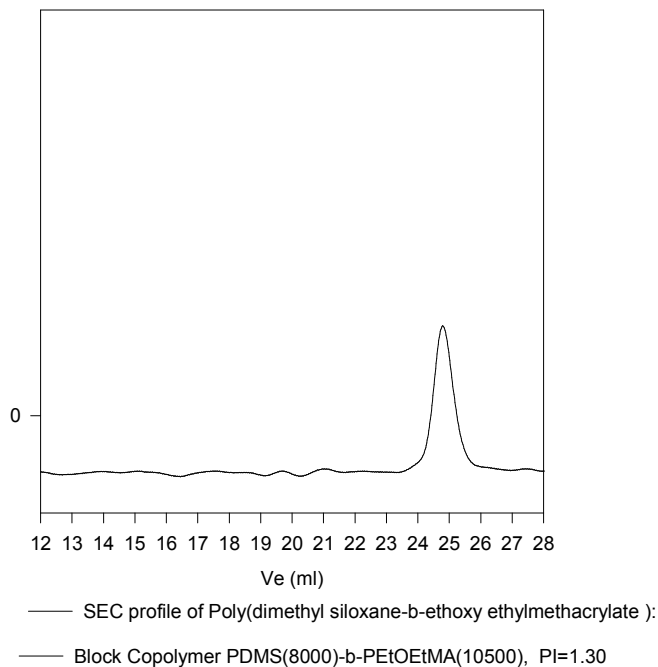


Figure: SEC profile of the block copolymer **P5720B-DMSEtOEtMA**



Thermal analysis results at a glance

Sample	T _m (°C)	T _c (°C)	T _g (°C)
DMS Block	-42	-68	-127 (Lit)
DMSEtOEtMA block	-	-	168

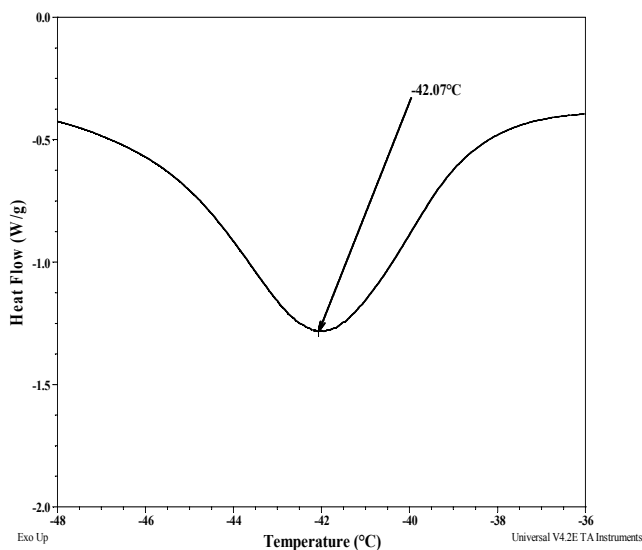
Thermal analysis of the P5720A- DMSEtOEtMA

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).

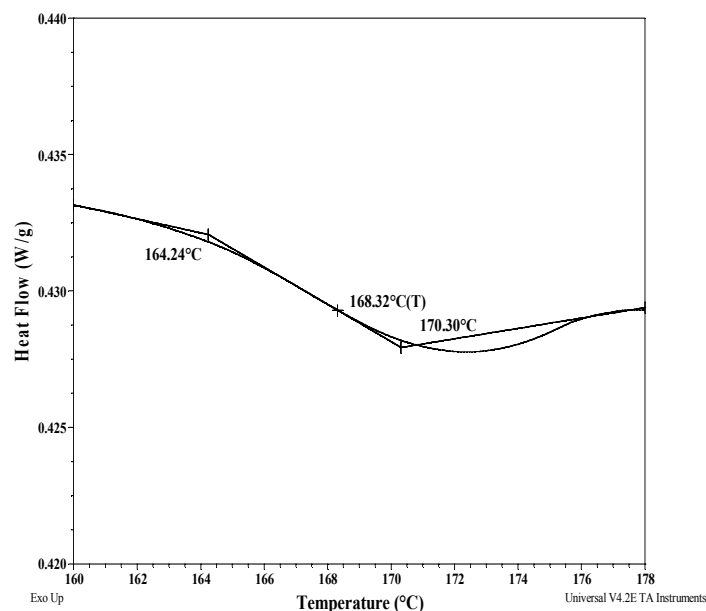
Melting and crystallization curve for the sample

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.

Melting curve for DMS block:



Thermogram for EtOEtMA block:



Crystallization curve for DMS block:

