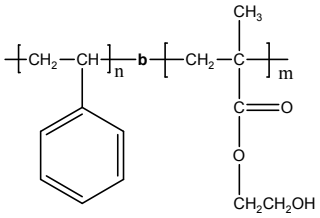
Sample Name:
Poly(styrene-b-hydroxyethyl methacrylate)

Sample #: **P2698-SHEMA**

Structure:



Composition:

Mn x 10^3 S-b-HEMA	Mw/Mn (PDI)
22.0-4.7	1.12

Glass transition temperature at a glance

T_g for PS block	106°C
T_g for HEMA block	Not distinct

Synthesis Procedure:

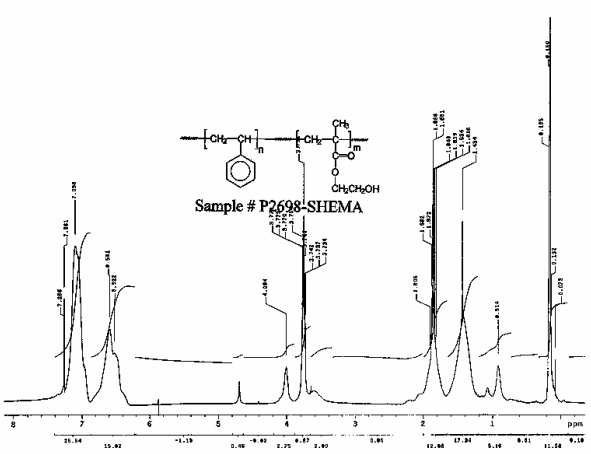
Poly(styrene-b-hydroxy ethyl methacrylate) is prepared by living anionic polymerization by sequence addition of styrene followed by trimethylsiloxyl ethyl methacrylate (HEMA-TMS) and deprotection of the OH group.

Thermal analysis:
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).

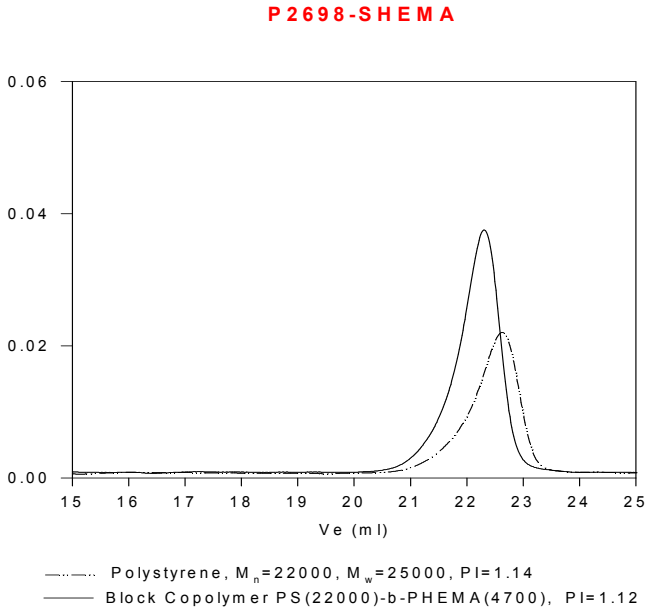
Characterization:
An aliquot of the polystyrene block was terminated before addition of trimethylsiloxyl ethyl methacrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ^{1}H-NMR spectroscopy by comparing the peak area of the styrene protons at 6.3-7.2 ppm with the peak area of ethyl methacrylate at ppm. Block copolymer PDI is determined by SEC.

Solubility:
Poly(styrene-b-hydroxyethyl methacrylate) is soluble in DMF, and precipitated into hexanes.

^{1}H NMR spectrum of the sample



SEC profile of the block copolymer



DSC thermogram for PS block: