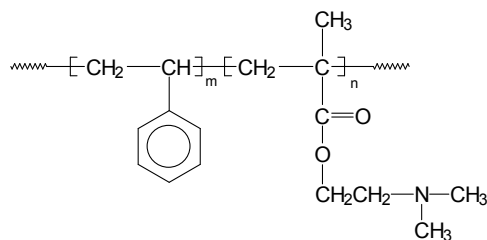


Sample Name:

Poly(styrene-*b*-N,N-dimethyl amino ethyl methacrylate)

Sample #: P9745-SDMEMA**Structure:****Composition:**

Mn x 10 ³ S- <i>b</i> -DMEMA	Mw/Mn (PDI)
30.0- <i>b</i> -2.5	1.15
T _g for PS block: 80°C	T _g for DMAEMA block: Not distinct

Synthesis Procedure:

Poly(styrene-*b*-N,N-dimethyl amino ethyl methacrylate) is prepared by anionic polymerization with sequential monomer addition of styrene followed by addition of NN-dimethyl amino ethyl methacrylate.

Characterization:

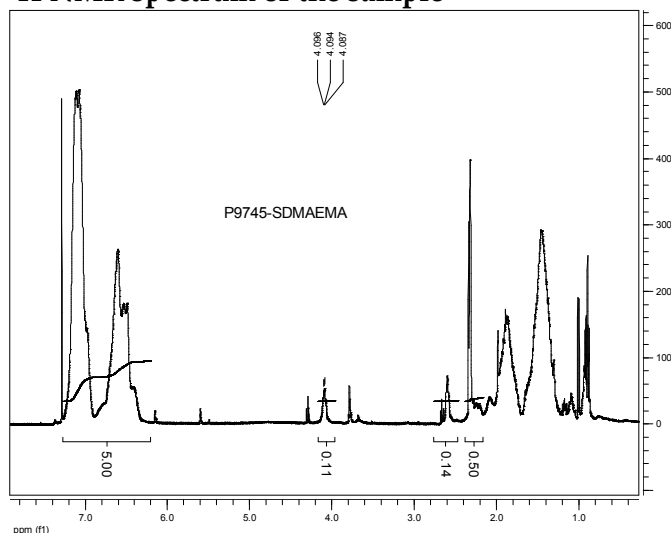
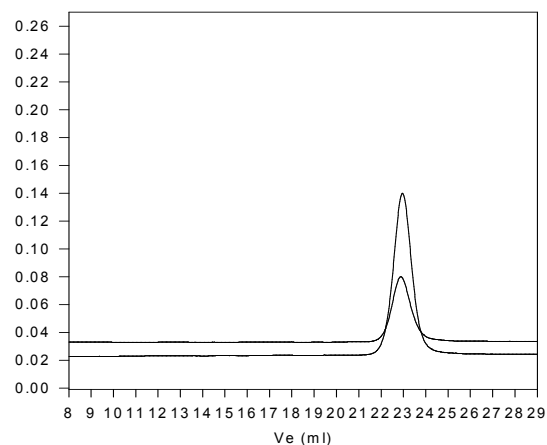
An aliquot of the polystyrene block was terminated before addition of NN-dimethyl amino ethyl methacrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area of the styrene protons at 6.3-7.2 ppm with the peak area of NN-dimethyl amino ethyl methacrylate at 4.2 ppm. Block copolymer PDI is determined by SEC.

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).

Solubility:

Block copolymer soluble in THF, dioxane, CHCl₃. It is formed a suspension like cloudy solution in methanol, ethanol.

¹H NMR spectrum of the sample**SEC profile of the block copolymer****P9745-SDMAEMA**

Size Exclusion chromatography of poly (styrene-*b*-N,N-dimethylethylmethacrylate):

- Polystyrene, M_n=30000, M_w=32,700 PI=1.09
- Block Copolymer PS(30,000)-*b*-PDMAEMA(2500), PI=1.15

DSC thermogram for PS block: