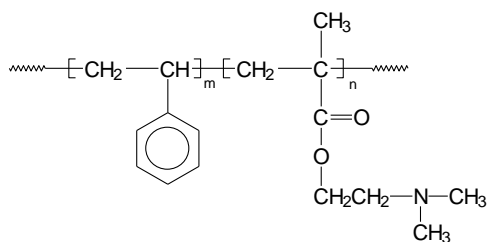


Sample Name:

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

Sample #: P2741-SDMEMA**Structure****Composition:**

Mn x 10 ³ S-b-DEMA	Mw/Mn (PDI)
14.5-b-3.6	1.27

Synthesis Procedure:

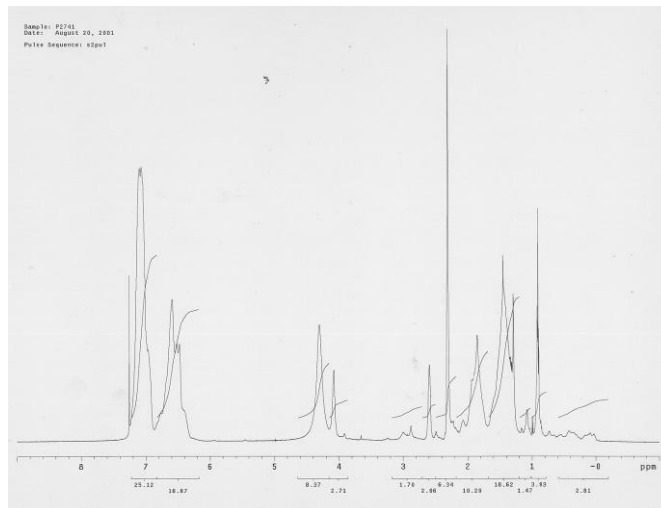
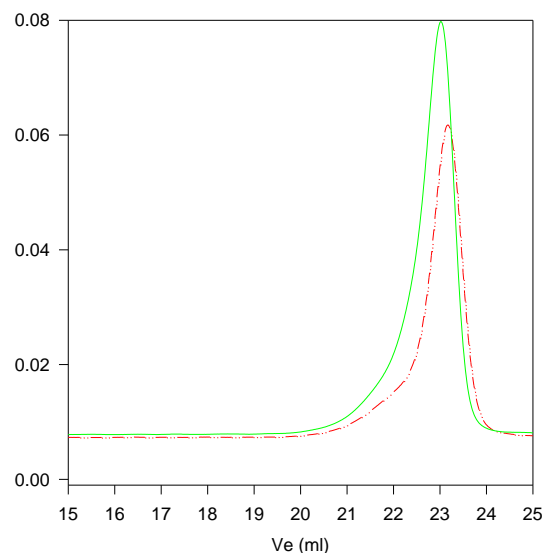
Poly(styrene-b-N,N-dimethyl amino ethyl methacrylate) is prepared by anionic polymerization with sequential monomer addition of styrene followed by addition of NN-dimethyl amino ethyl methacrylate. Polymerization was carried out in THF at – 78 0C.

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.

Solubility:

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

¹H NMR spectrum of the sample**SEC profile of the block copolymer****P2741-SDMEMA**

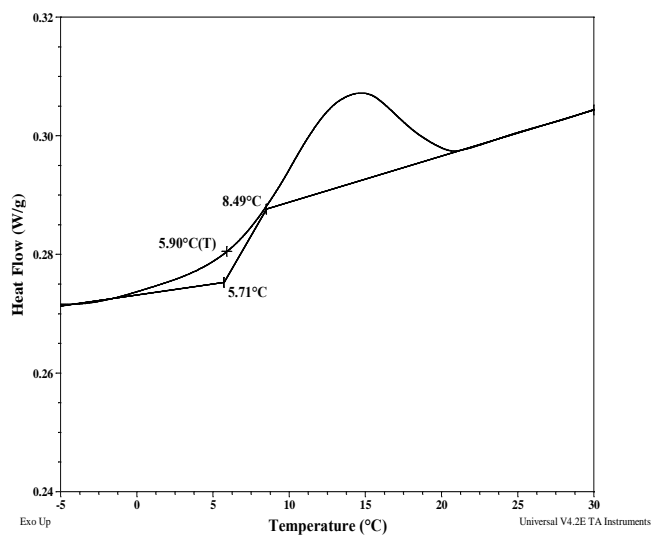
Size Exclusion chromatography of poly (styrene-b-N,N-dimethylethylmethacrylate):

- Polystyrene, M_n=14000, M_w=18300 PI=1.26
- Block Copolymer PS(14500)-b-PNNDMEMA(3600), PI=1.27

Thermal analysis of sample P2741-SDMEMA

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).

DSC thermogram for PDMEA block:



Glass transition temperature at a glance

T_g for PS block	90°C
T_g for PDMEA block	06°C

DSC thermogram for PS block:

