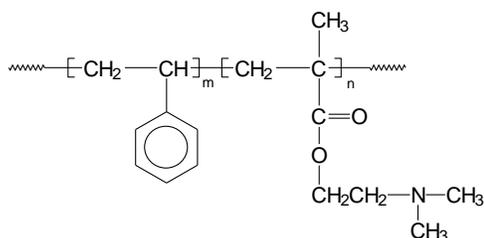


**Sample Name:**

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

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

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

**Synthesis Procedure:**

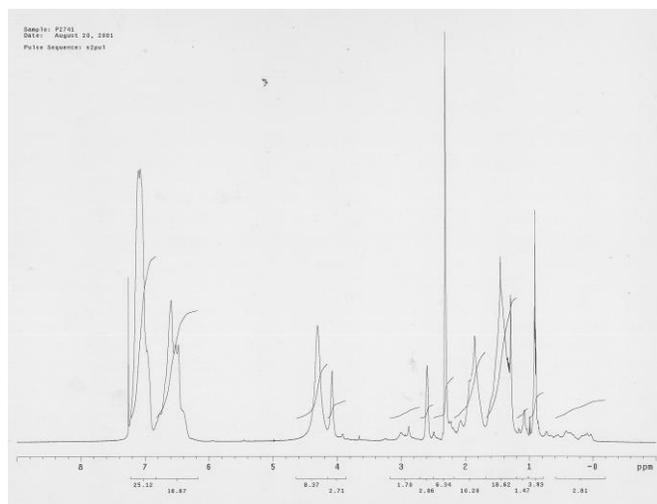
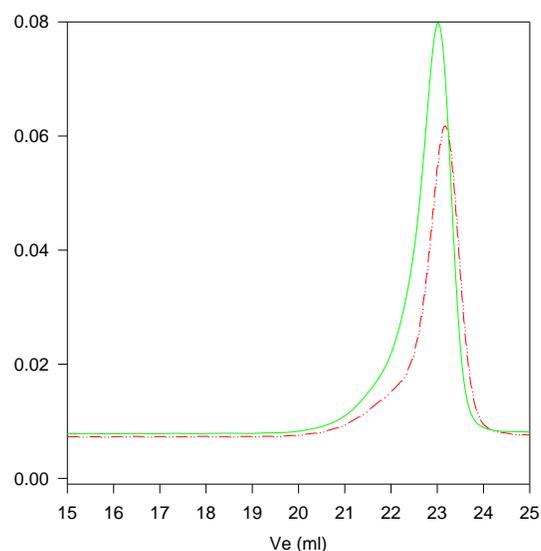
Poly(styrene-b-N,N-dimethyl amino ethyl methacrylate) is prepared by anionic polymerization with sequential monomer addition of styrene followed by addition of NN-dimethyl amino ethyl methacrylate. Polymerization was carried out in THF at -78 °C.

**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 <sup>1</sup>H-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, CHCl<sub>3</sub>. It formed a suspension (cloudy solution) in methanol, ethanol.

**<sup>1</sup>H NMR spectrum of the sample****SEC profile of the block copolymer****P2741-SDMEMA**

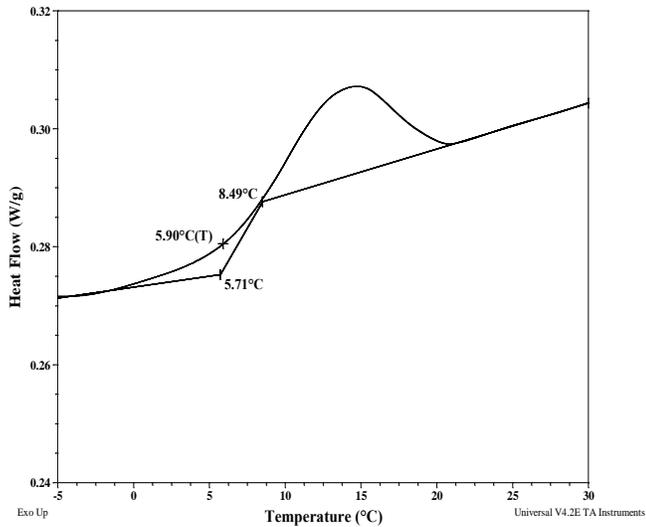
Size Exclusion chromatography of poly (styrene-b-N,N-dimethylethylmethacrylate):

- Polystyrene, M<sub>n</sub>=14000, M<sub>w</sub>=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:

