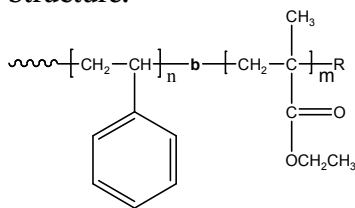


**Sample Name:**

Poly(styrene-b-ethyl methacrylate)

**Sample #: P5032-SEMA****Structure:****Composition:**

|                                 |       |
|---------------------------------|-------|
| Mn x 10 <sup>3</sup><br>S-b-EMA | Mw/Mn |
| 36.0-b-33.0                     | 1.05  |

**Glass transition temperature at a glance**

|                              |              |
|------------------------------|--------------|
| T <sub>g</sub> for PS block  | Not distinct |
| T <sub>g</sub> for MMA block | 85°C         |

**Synthesis Procedure:**

Poly(styrene-b-ethyl methacrylate) is prepared by living anionic polymerization with sequence addition of styrene followed by ethyl methacrylate.

**Characterization:**

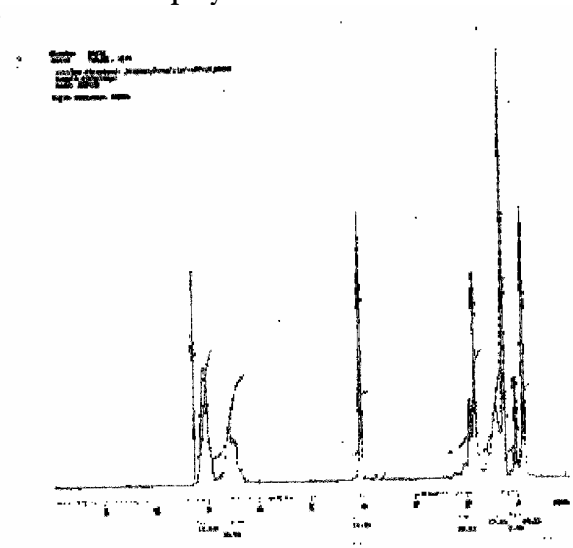
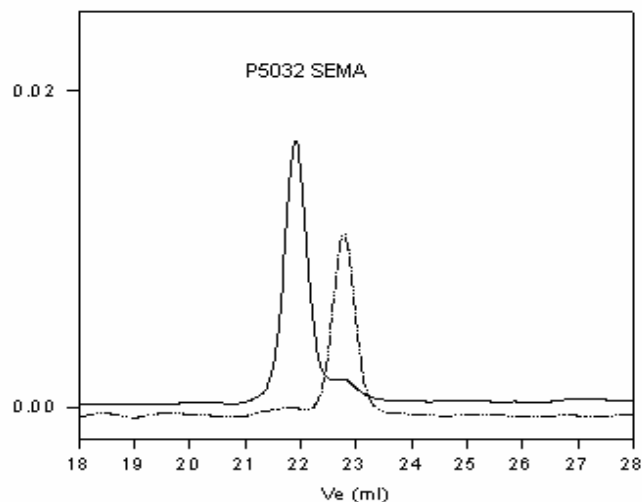
An aliquot of the polystyrene block was terminated before addition of hexamethyl cyclotrisiloxane and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy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

**Thermal analysis of sample P5032-SEMA**

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<sub>g</sub>).

**Solubility:**

Poly(styrene-b-ethyl methacrylate) is soluble in THF, CHCl<sub>3</sub>.

**<sup>1</sup>H-NMR of the polymer****SEC profile of the block copolymer**

Size Exclusion chromatography of poly (styrene-b-ethyl methacrylate):

- ..... Polystyrene, M<sub>n</sub> = 36000, M<sub>w</sub> = 36900, PI=1.02
- Block Copolymer P S(36000)-b-P EtMA(33000), PI= 1.05  
Composition from <sup>1</sup>H NMR

**Thermogram of EMA block:**