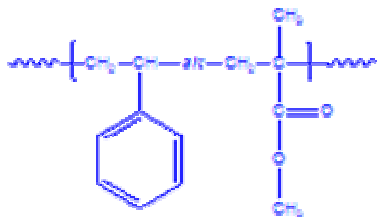


Sample Name:

Alternating Copolymer Poly(styrene-alt- methyl methacrylate)

Sample #: P1634-SMMAalt**Structure:****Composition:**

| | |
|----------------------------------------|------|
| Mn x 10 ³ PS-alt-PMMA | PDI |
| 561 | 1.94 |
| T _g for alternating polymer | 83°C |

Synthesis Procedure:

Poly(styrene-alt- methyl methacrylate) is prepared by free radical polymerization in toluene with BPO as an initiator in the presence of ethyl aluminum sesquichloride.

Characterization:

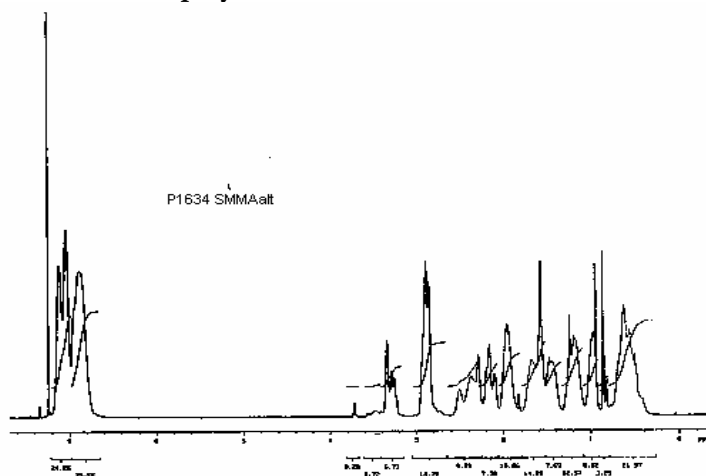
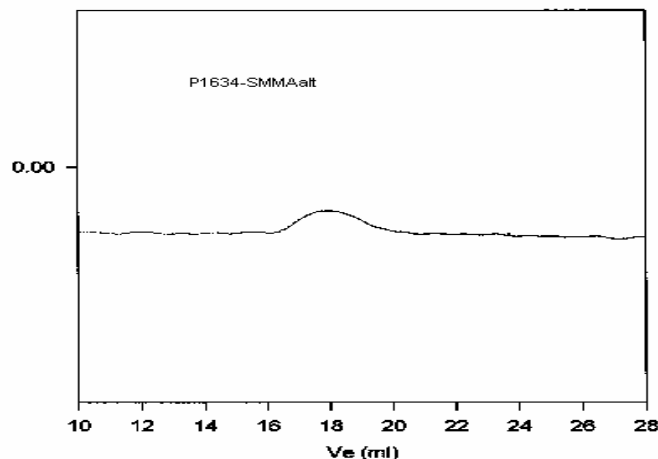
The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area the aromatic protons of styrene at about 7.05 ppm with the peak area of methyl methacrylate at 3.6 ppm.

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:

Random copolymer Poly(styrene-alt- methyl methacrylate) is soluble in CHCl₃, THF, DMF, toluene and precipitated out from methanol.

¹H-NMR for the polymer**SEC of the alternating polymer:**

Size exclusion chromatography of alternating copolymer
Polystyrene-alt-Poly(methyl methacrylate):
M_n=561,000 M_w=1,088,000, , PI=1.94

DSC thermogram for the sample