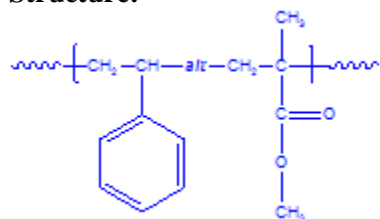


Sample Name:

**Poly(styrene-alt-methyl methacrylate),
alternating**

Sample #: **P1633-SMMAalt**

Structure:



Composition:

Mn x 10 ³ PS-alt-PMMA	PDI
235	1.85
T _g for alternating polymer	75°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 protons of 4-hydroxy styrene at about 3.6 ppm.

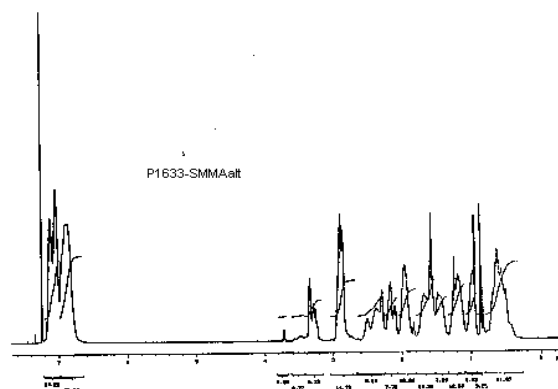
Thermal analysis:

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).

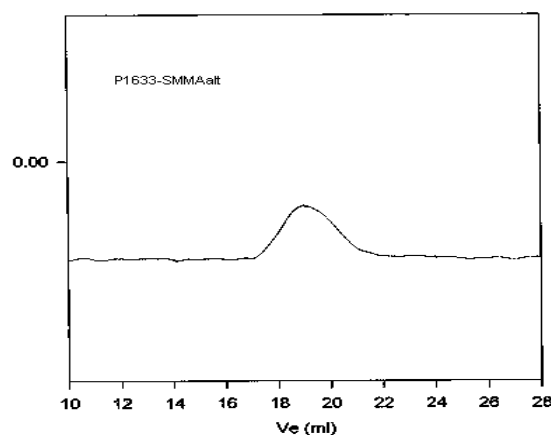
Solubility:

Random Copolymer Poly(styrene-co-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=235000 M_w=438000, M_z=688700, PI=1.85

DSC thermogram for the sample

