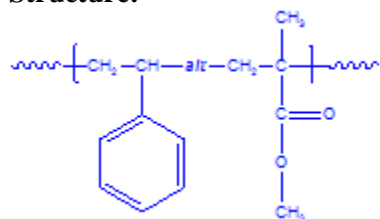


Sample Name:

Alternating Copolymer Poly(styrene-alt-methyl methacrylate)

Sample #: **P1630B-SMMAalt**

Structure:



Composition:

Mn x 10 ³ PS-alt-PMMA	PDI
382	1.49
T _g for alternating polymer 99°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.

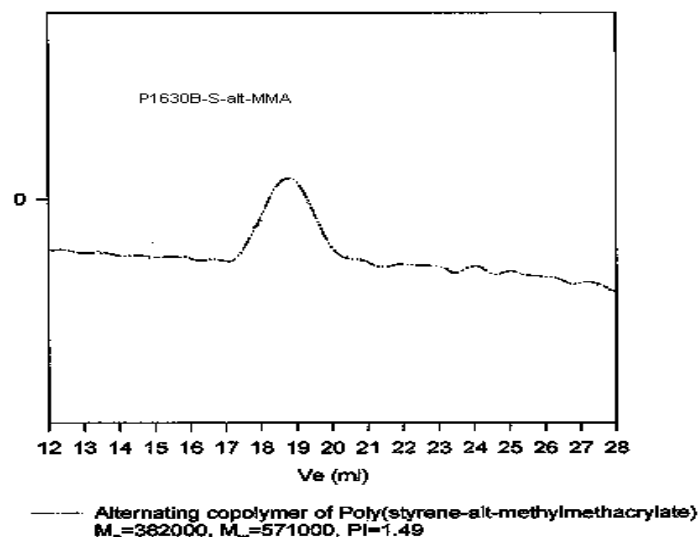
Thermal analysis:

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).

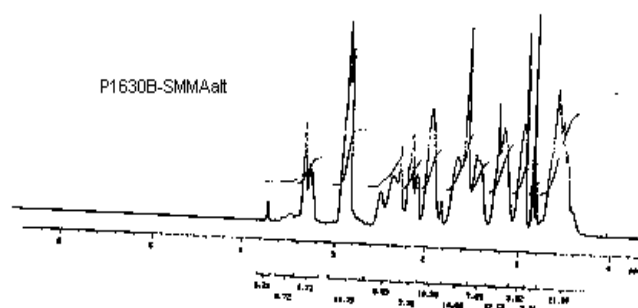
Solubility:

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

SEC of the alternating polymer:



HNMR for the polymer:



DSC thermogram for the sample:

