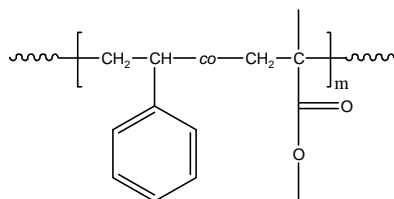


Sample Name: **Random Copolymer:**
Poly(Styrene-co-Methyl Methacrylate)

Sample #: **P855-SMMAran**

Structure:

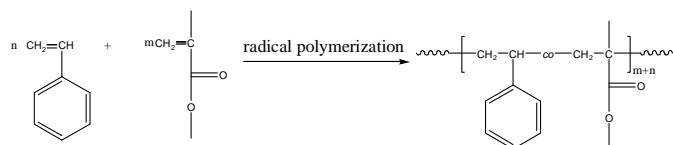


Composition:

Mn x 10 ³ PS-co-PMMA 146.8 (PS = 20 mol%)	PDI 1.57
T _g of the copolymer	117 °C

Synthesis Procedure:

Poly(styrene-co-methyl methacrylate) random copolymer was prepared by radical polymerization of styrene and methyl methacrylate. The scheme of the reaction is presented below:



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 methyl ester protons of methyl methacrylate at about 3.6 ppm.

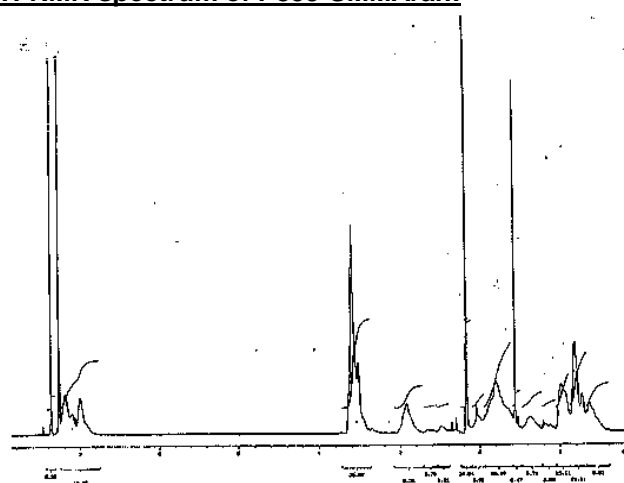
Thermal analysis:

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:

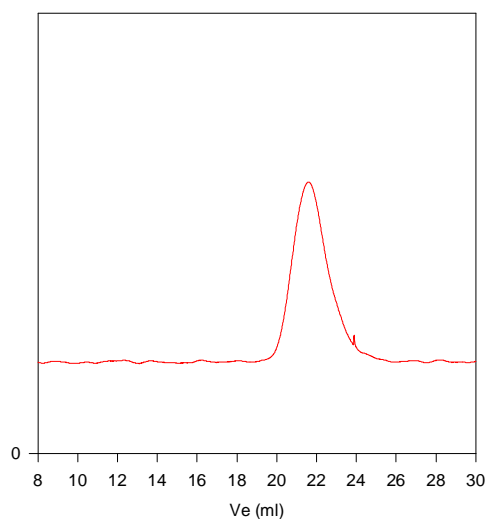
Poly(styrene-co-methyl methacrylate) random copolymer is soluble in CHCl₃, THF, DMF, toluene; and it precipitates from methanol.

¹H-NMR spectrum of P855-SMMAran:



SEC elugram of P855-SMMAran:

P855-SMMA_{ran}



Size exclusion chromatograph of random copolymer: poly(St-co-MMA):

M_n=146,800, M_w=230,500, M_w/M_n=1.57

DSC thermogram of P855-SMMAran:

