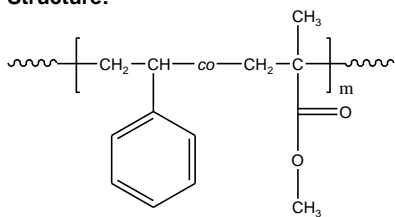Sample Name:
 Random Copolymer Poly(styrene-co-methyl methacrylate)

Sample #: **P9130B-SMMAran**

Structure:
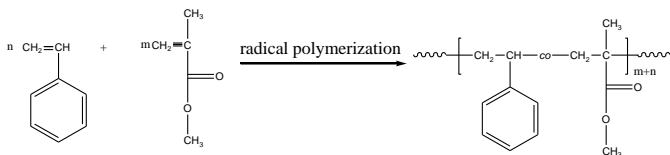

Composition:
Poly styrene: (mol%) : 48.0

Mn x 10³ PS-co-PMMA	PDI
27.0	1.8

Synthesis Procedure:

 Random Copolymer Poly(styrene-co-methyl methacrylate) is prepared by radical polymerization of styrene and methyl methacrylate . The scheme of the reaction is illustrated 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 ^{1}H-NMR spectroscopy by comparing the peak area the aromatic protons at 6.66-7.05 ppm with the protons of methyl methacrylate at about 0.8-3.8 ppm that deducts the contribution of the styrene back bone protons.
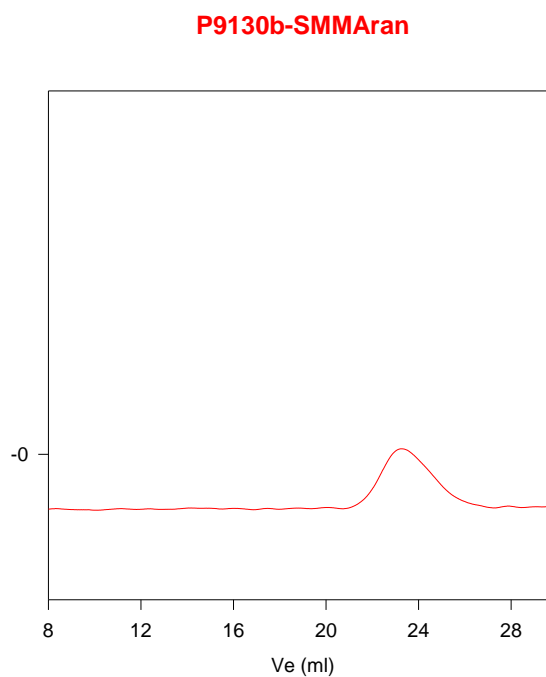
Solubility:
Random Copolymer Poly(styrene-co-methyl methacrylate) is soluble in CHCl₃, THF, DMF, toluene and precipitated out from methanol.

^{1}H-NMR Spectrum of the random copolymer:
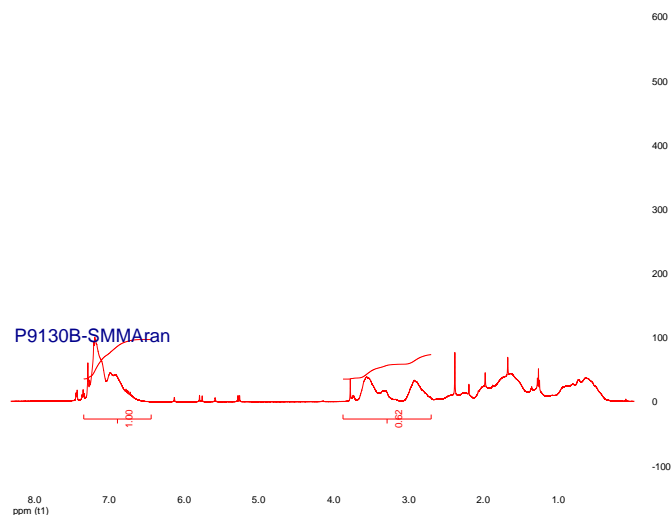
SEC of the random copolymer:

P9130b-SMMAran

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

M_n=27,000, M_w=48,600, M_w/M_n=1.8
Polystyrene content: 48% mole by NMR