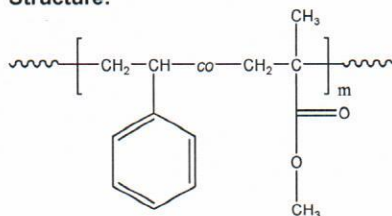


Sample Name:
Random Copolymer Poly(styrene-co-methyl methacrylate)

Sample #: P9130C-SMMAran

Structure:



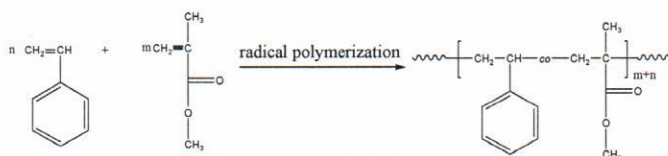
Composition:

Poly styrene: (mol%) : 25.0

Mn x 10 ³ PS-co-PMMA	PDI
54.0	1.6

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:



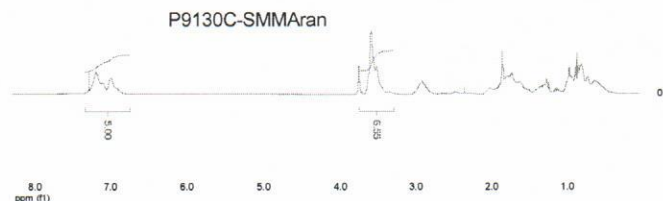
Characterization:

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

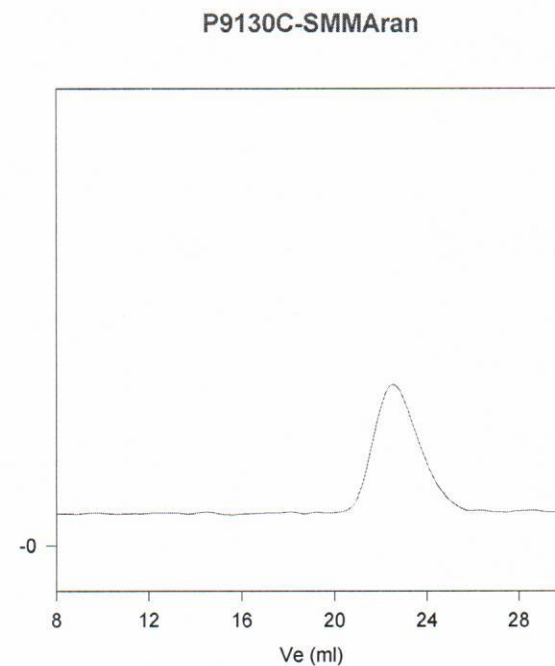
Solubility:

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

¹H-NMR Spectrum of the random copolymer:



SEC of the random copolymer:



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

M_n=54,000, M_w=66,500, M_w/M_n=1.6

Polystyrene content: 25% mole by NMR