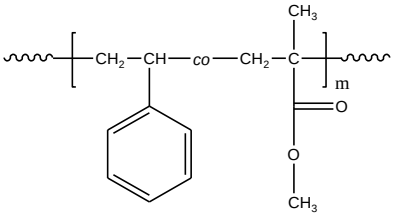
Sample Name:
Random Copolymer Poly(styrene-co-methyl methacrylate)

Sample #: **P7046-SMMAran**

Structure:



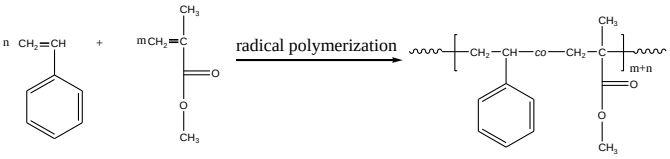
Composition:

PS (mol%) : 91

Mn x 10^3 PS-co-PMMA	PDI
51.4	2.0

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:



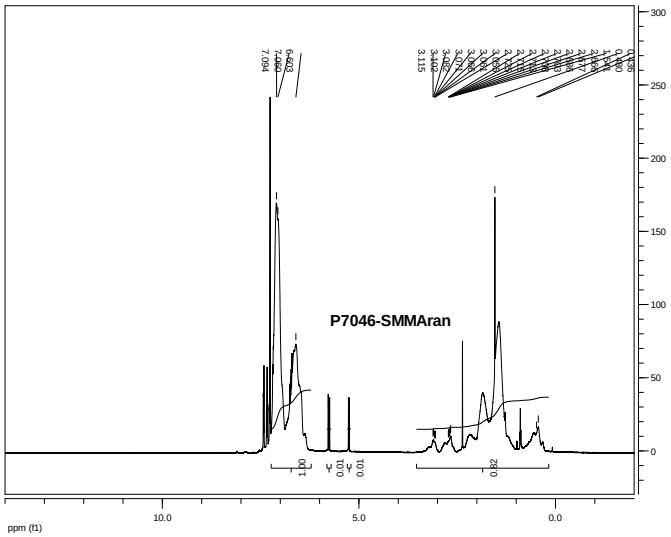
Characterization:

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:

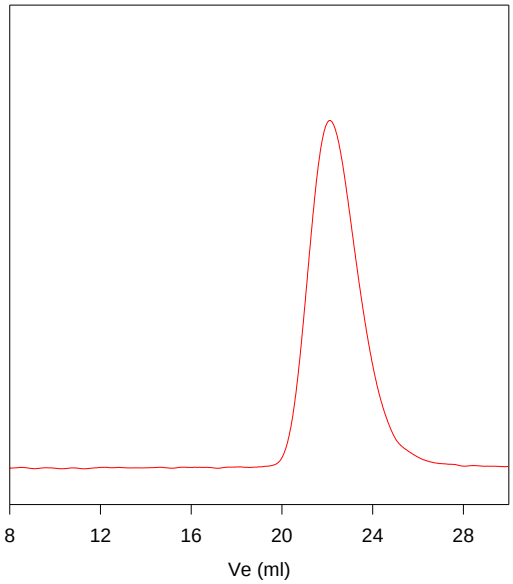
Random Copolymer Poly(styrene-co-methyl methacrylate) is soluble in $CHCl_3$, THF, DMF, toluene and precipitated out from methanol.

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



SEC of the random copolymer:

P7046-SMMAran



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

M_n=51400, M_w=102800, M_w/M_n=2.0

Polystyrene content: 91%mol by NMR