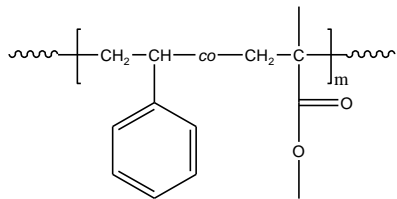


Sample Name:

Random Copolymer Poly(styrene-co-methyl methacrylate)

Sample #: **P7042-SMMAran**

Structure:



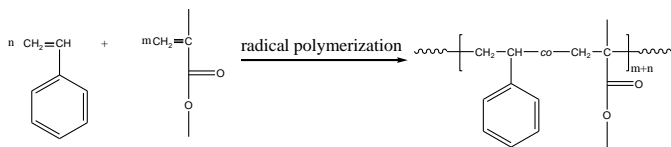
Composition:

PS (mol%) : 12

$M_n \times 10^3$ PS-co-PMMA (k)	PDI
54.9	2.3

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:



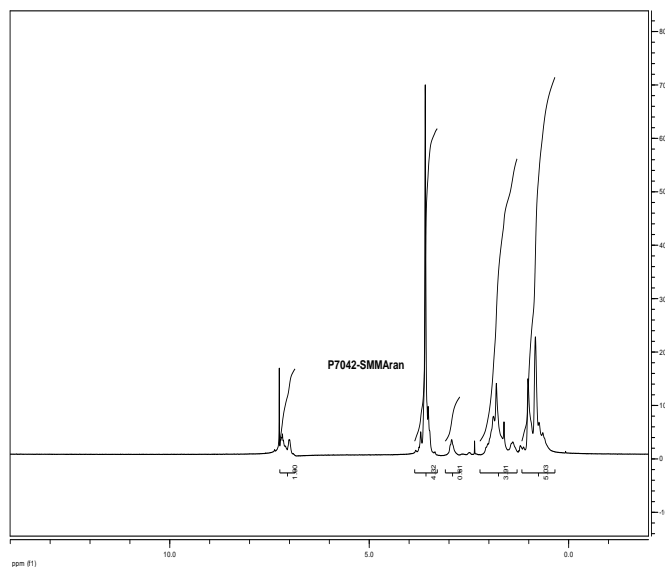
Characterization:

The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from $^1\text{H-NMR}$ 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.

Solubility:

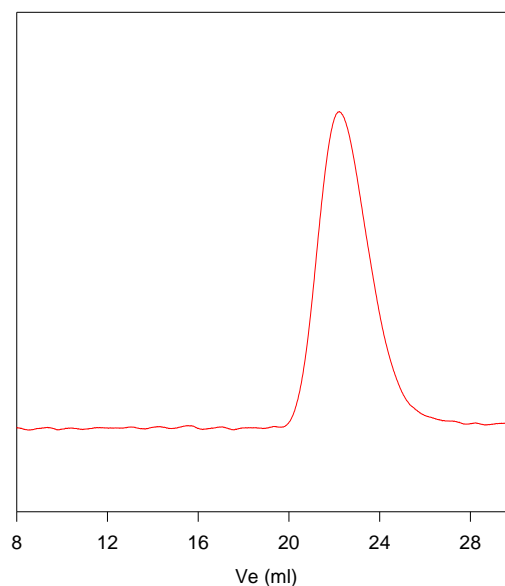
Random Copolymer Poly(styrene-co-methyl methacrylate) is soluble in CHCl_3 , THF, DMF, toluene and precipitated out from methanol.

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



SEC of the random copolymer:

P7042-SMMAran



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

$M_n=54900$, $M_w=128000$, $M_w/M_n=2.3$

Polystyrene content: 12% by NMR