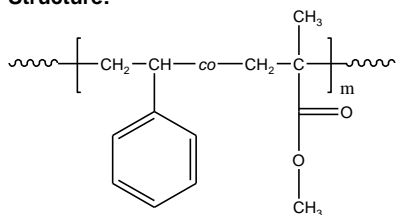


**Sample Name:**  
Random Copolymer Poly(styrene-co-methyl methacrylate)

**Sample #:** P9130A-SMMAran

**Structure:**



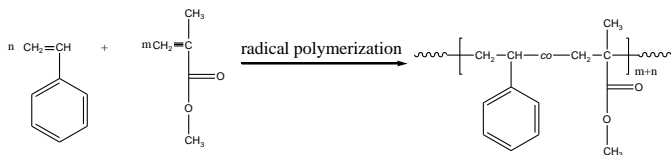
**Composition:**

**Poly styrene: (mol%) : 46.0**

Mn x 10 <sup>3</sup> PS-co-PMMA	PDI
47.0	1.4

**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:**

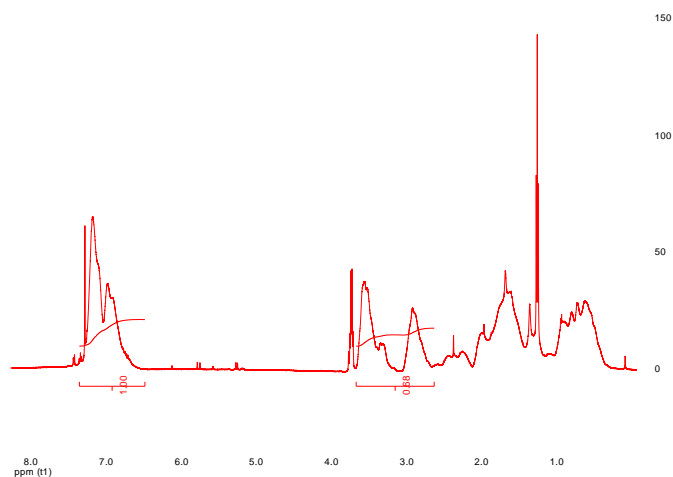
The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area the aromatic protons at 6.66-7.05 ppm with the protons of methyl methacrylate 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<sub>3</sub>, THF, DMF, toluene and precipitated out from methanol.

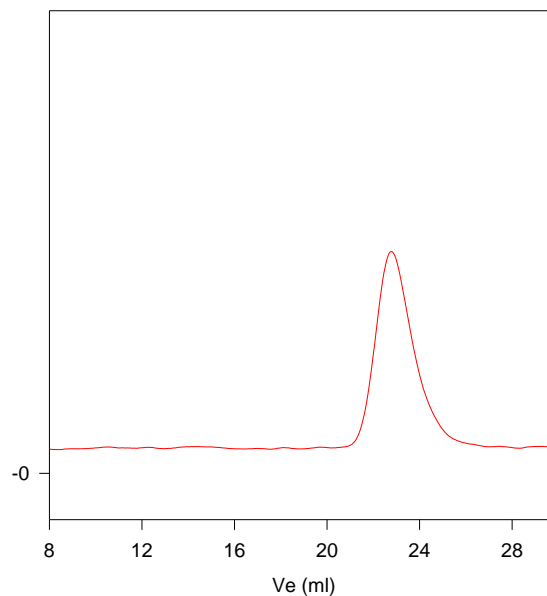
**<sup>1</sup>H-NMR Spectrum of the random copolymer:**

P9130A-SMMAran



**SEC of the random copolymer:**

P9130A-SMMAran



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

M<sub>n</sub>=47,000, M<sub>w</sub>=66,000, M<sub>w</sub>/M<sub>n</sub>=1.4

Polystyrene content: 46% mole by NMR