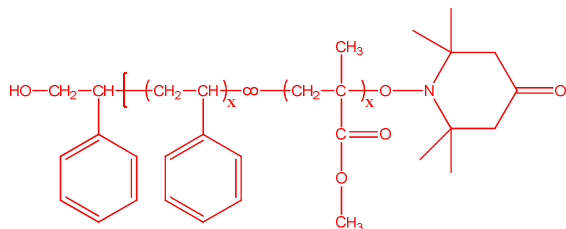


Sample Name:

Random Copolymer Poly(styrene-co-methyl methacrylate), α -Hydroxyl- ω -Tempo moiety Terminated

Sample #: **P6457-SMMAranOHT**

Structure:

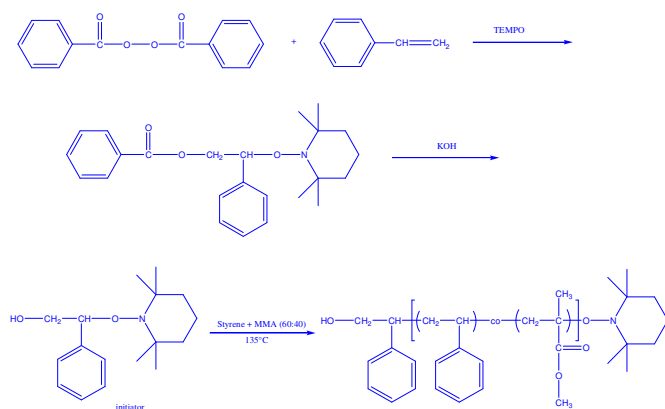


Composition:

Mn x 10 ³ (Styrene content mol%)	Mw/Mn (PDI)
16.4 (58%)	1.39

Synthesis Procedure:

Hydroxy terminated poly(styrene-co-methyl methacrylate) is prepared by stable free radical polymerization at 135°C. The reaction scheme is shown below (Example using TEMPO):



Characterization:

An aliquot of the copolymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI), the instrument calibrated by Polystyrene standards. The chemical composition was calculated from ¹H-NMR spectroscopy by comparing the peak area of the phenyl protons at 6.8-7.4 ppm with the peak area of methyl methacrylate at 2.6-3.6 ppm.

Solubility:

Poly(styrene-co-methyl methacrylate) is soluble in THF, DMF, Toluene and chloroform. Precipitate from methanol and Hexanes.

Figure: ¹H NMR spectrum

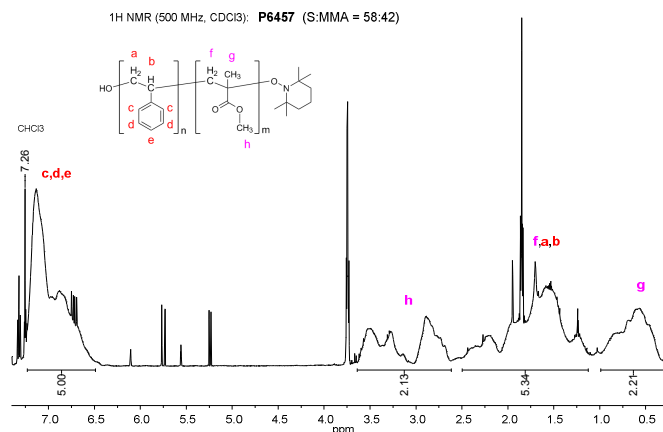
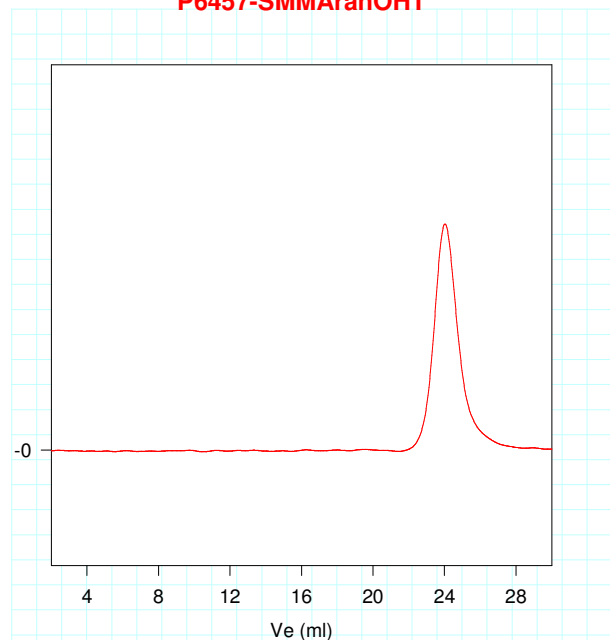


Figure: SEC profile of the random copolymer **P6457-SMMAranOHT**



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

M_n=16400, M_w=22800, M_w/M_n=1.39
Polystyrene content: 58 mol% by NMR