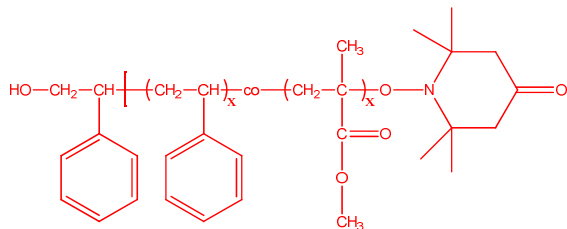Sample Name:

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

Sample #: **P20202A-SMMAranOHT**

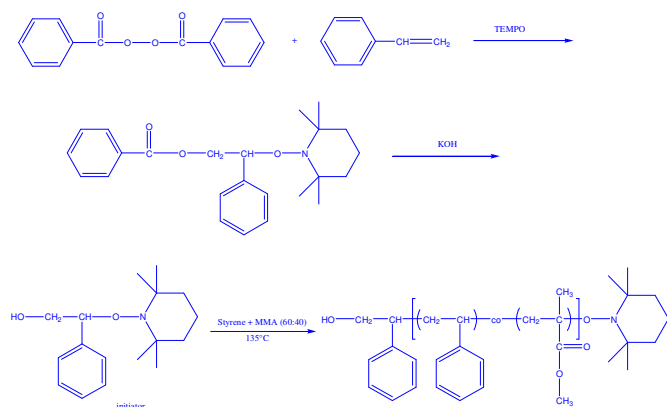**Structure:**

Composition:

$M_n \times 10^3$ (g/mol)	M_w/M_n (PDI)
8.0	1.20

Polystyrene content: 43 mol %

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):
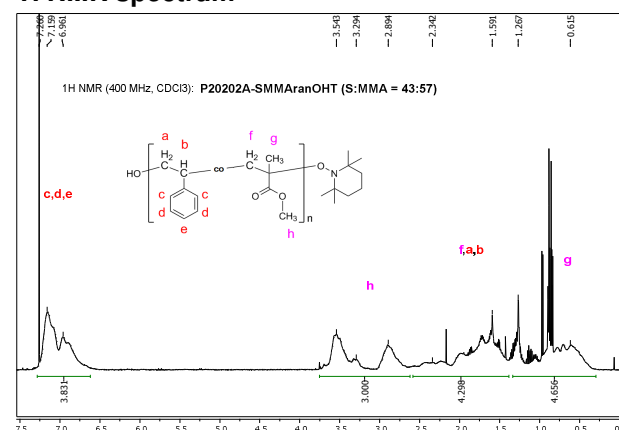

Characterization:

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 ^{1}H-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.
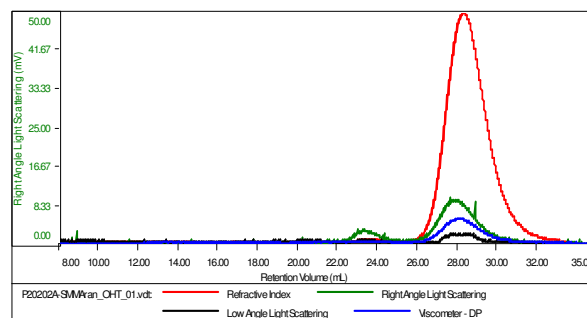
Solubility:

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

^{1}H NMR spectrum

1H NMR (400 MHz, CDCl3): **P20202A-SMMAranOHT (S:MMA = 43:57)**

SEC profile of the random copolymer
Sample ID:P20202A-SMMAranOHT

Concentration (mg/mL)	9.3765
Sample dn/dc (mL/g)	0.1300
Method File	PS80K-March6-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF

Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersi	Intrinsic Viscosity (dL/g)
P20202A-SMMAran_OHT_01.vdt	8,011	9,625	9,288	1.201	0.0751

(v.M-02)