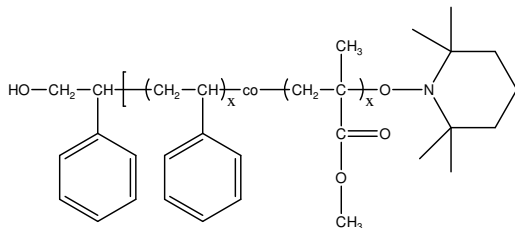**Sample**: **Poly(Styrene–*co*–Methyl Methacrylate), α-Hydroxy, ω-TEMPO-moiety terminated random copolymer**

Sample # **P20199-SMMAranOHT**

Structure:
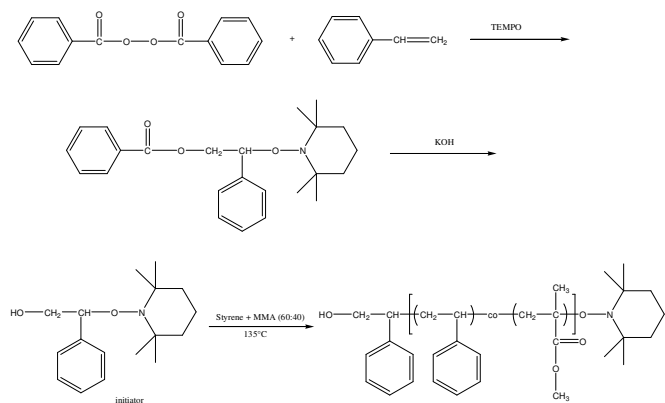

Composition:

$M_n \times 10^3$ (g/mol)	M_w/M_n (PDI)
9.1	1.32

Polystyrene content: 53 mol %

Synthesis:
Hydroxy-terminated poly(styrene-co-methyl metha-crylate) was prepared by stable free radical polymerization at 135 °C. The reaction scheme is shown below:
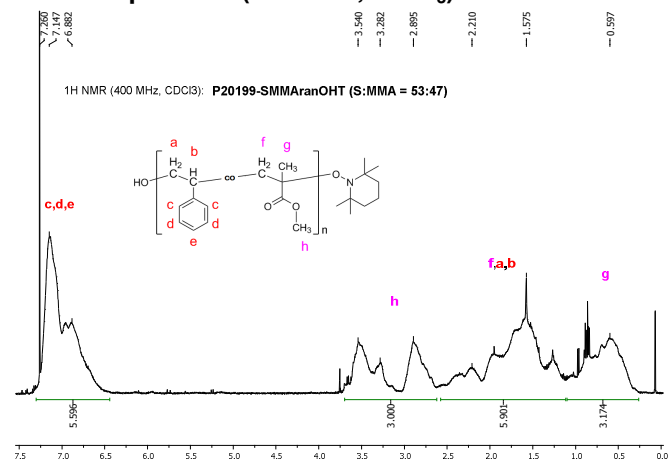

Characterization:
The molecular weight and polydispersity index (PDI) of the product was determined by size exclusion chromatography (SEC), using polystyrene as a standard. The ratio between polystyrene and poly(methyl methacrylate) in PS-PMMA copolymer was calculated from ^{1}H NMR spectroscopy by comparing the peak area of the PS phenyl protons at 6.5–7.3 ppm and the peak area of PMMA methoxy protons at 2.6–3.6 ppm.

Solubility:
Poly(styrene–co–methyl methacrylate) is soluble in THF, DMF, toluene, and chloroform. It precipitates from methanol and hexanes.
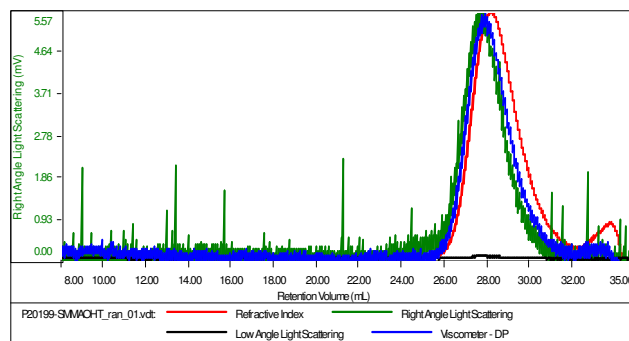
^{1}H NMR spectrum (500 MHz, CDCl₃):

1H NMR (400 MHz, CDCl3): **P20199-SMMAranOHT (S:MMA = 53:47)**

SEC elugram of the copolymer:
Sample ID: P20199-SMMAran OHT

Concentration (mg/mL)	4.5913
Sample dn/dc (mL/g)	0.1300
Method File	PS80K-March6-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF

| P20199-SMMAOHT_ran_01.vdt: | Refractive Index | Right Angle Light Scattering |
| Low Angle Light Scattering | Viscometer - DP | |

Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersi	Intrinsic Viscosity (dL/g)
P20199-SMMAOHT_ran_01.vdt	9,122	12,061	12,270	1.322	0.0752