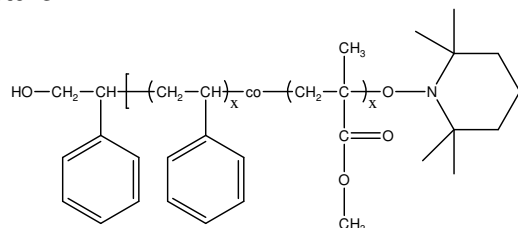Sample: **Poly(Styrene–*co*–Methyl Methacrylate), α-Hydroxy, ω-TEMPO-moiety terminated random copolymer**

Sample # **P6469B-SMMAranOHT**

Structure:
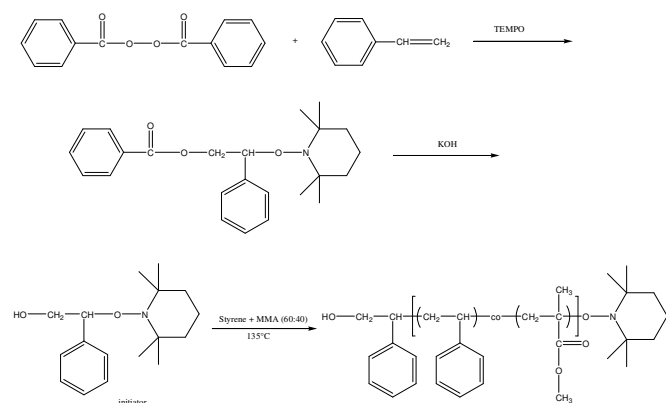

Composition:

Mn x 10^3 (g/mol)	M$_w$/M$_n$ (PDI)
3.5	1.55

Polystyrene content: 55 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:
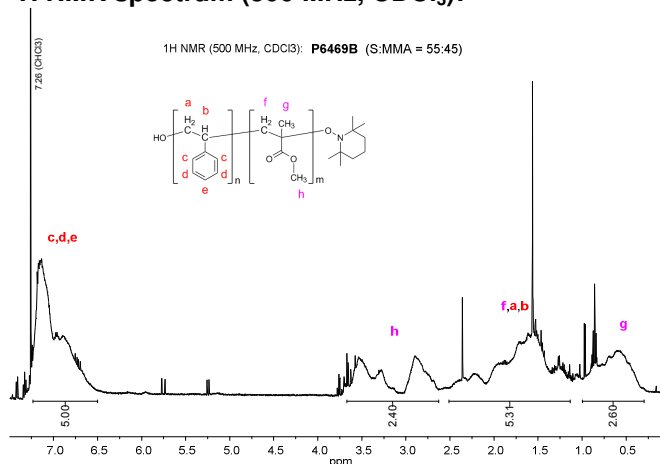

Characterization:
The molecular weight and polydispersity index (PDI) of the product was determined by size exclusion chromatography (SEC), using polystyrene as a standard. The ratio between polystyrene and poly(methyl methacrylate) in PS-PMMA copolymer was calculated from ^{1}H NMR spectroscopy by comparing the peak area of the PS phenyl protons at 6.5–7.3 ppm and the peak area of PMMA methyl protons at 2.6–3.6 ppm.
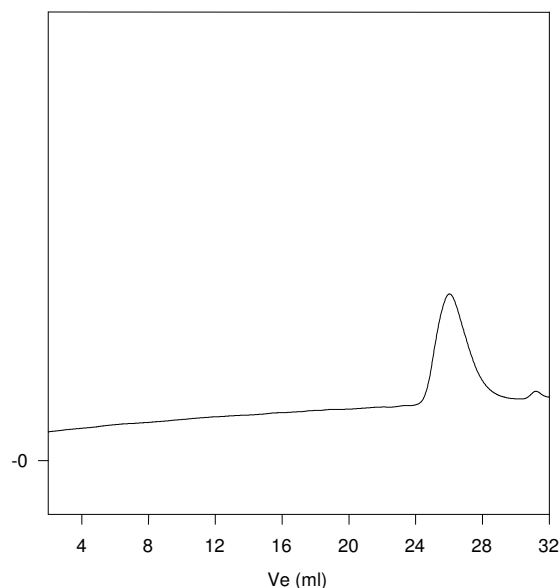
Solubility:
Poly(styrene–*co*–methyl methacrylate) is soluble in THF, DMF, toluene, and chloroform. It precipitates from methanol and hexanes.

^{1}H NMR spectrum (500 MHz, CDCl$_3$):

1H NMR (500 MHz, CDCl3): **P6469B** (S:MMA = 55:45)

SEC elugram of the copolymer:
P6469B-SMMAranOHT

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

M$_n$=3500, M$_w$=5400, M$_w$/M$_n$=1.55
Polystyrene content: 55 mol% by NMR