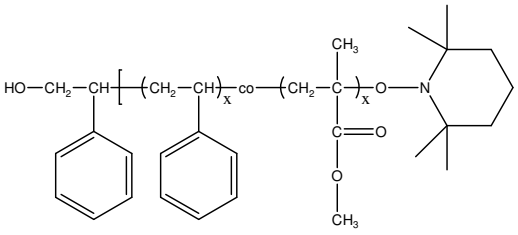
Sample: **Poly(Styrene–*co*–Methyl Methacrylate), α-Hydroxy, ω-TEMPO-moiety terminated random copolymer**

Sample # **P6618E-SMMAranOHT**

Structure:



Composition:

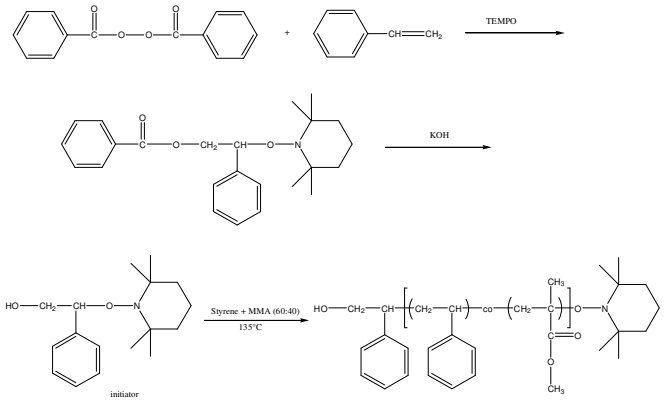
$M_n \times 10^3$ (g/mol)	M_w/M_n (PDI)
3.5	1.4

Polystyrene content: 56 mol %

T_g = 66°C

Synthesis:

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



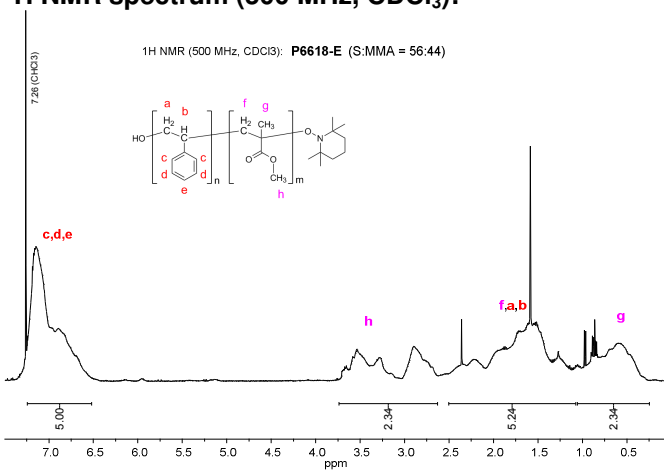
Characterization:

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. The glass transition temperature (T_g) of the product was determined on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min.

Solubility:

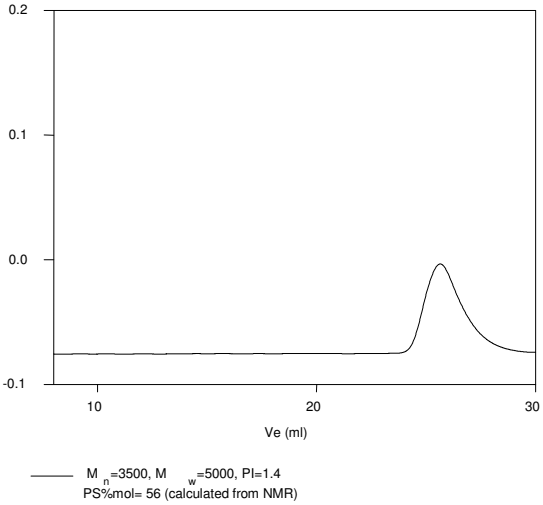
Poly(styrene–co–methyl methacrylate) is soluble in THF, DMF, toluene, and chloroform. It precipitates from methanol and hexanes.

^{1}H NMR spectrum (500 MHz, $CDCl_3$):



SEC elugram of the PS-PMMA copolymer:

P6618E-SMMAranOHT



DSC thermogram (second heating scan):