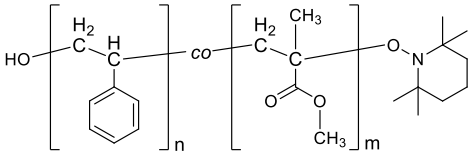
Sample: **Poly(Styrene–*co*–Methyl Methacrylate), α-Hydroxy, ω-TEMPO-moiety terminated random copolymer**

Sample # **P60604A-SMMAranOHT**

Structure:



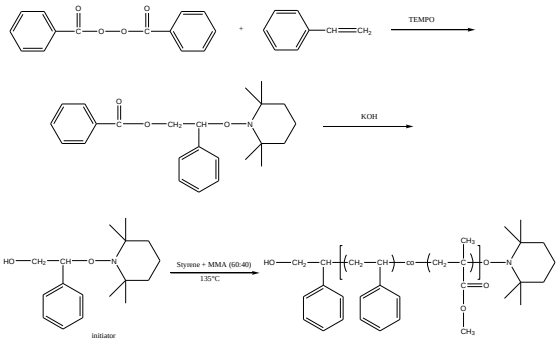
Composition:

M_n x 10^3 (g/mol)	M_w/M_n (PDI)
14.5	1.08

Polystyrene content: 85%

Synthesis:

α-Hydroxy,ω-TEMPO-terminated poly(styrene–*co*–methyl methacrylate) was prepared by nitroxide-mediated radical polymerization at 135°C. The reaction scheme is shown below:



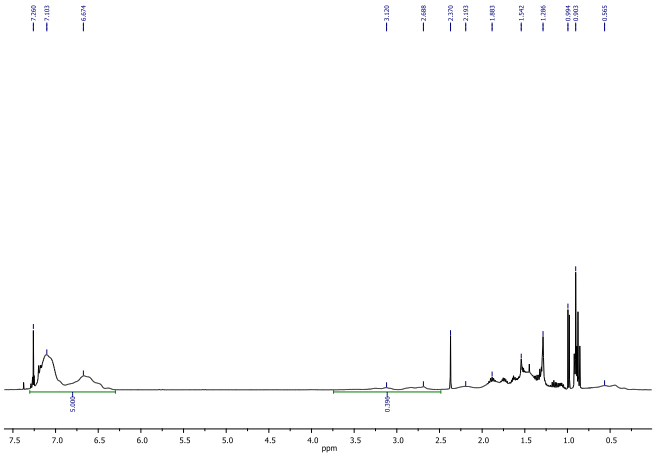
Characterization:

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.

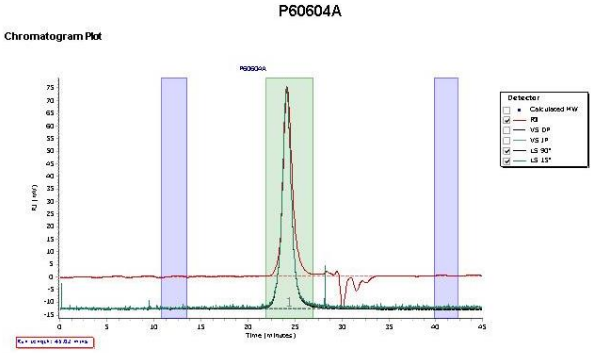
Solubility:

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

^{1}H NMR spectrum of the copolymer in $CDCl_3$:



SEC elugram of the copolymer:



Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	16124	14564	15835	17020	18245	17038	1.087