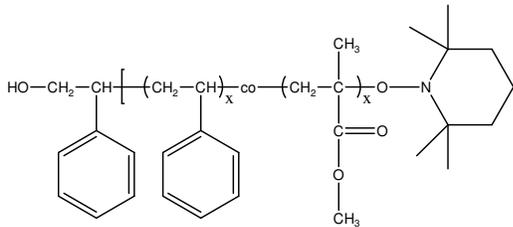


**Sample: Poly(Styrene-co-Methyl Methacrylate),  $\alpha$ -Hydroxy,  $\omega$ -TEMPO-moiety terminated random copolymer**

**Sample # P6618F-SMMAranOHT**

**Structure:**



**Composition:**

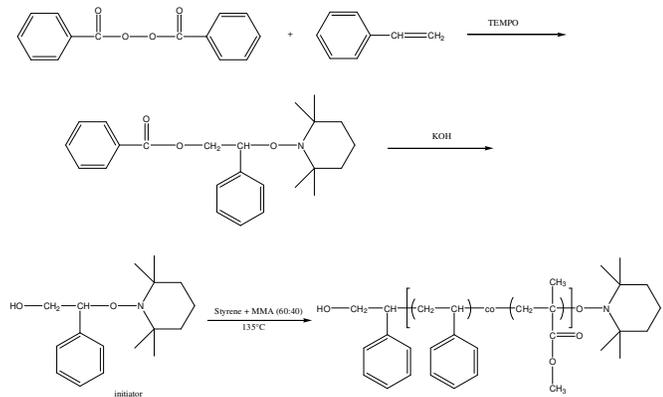
$M_n \times 10^3$ (g/mol)	$M_w/M_n$ (PDI)
4.5	1.5

Polystyrene content: 57 mol %

$T_g = 78^\circ\text{C}$

**Synthesis:**

Hydroxy-terminated poly(styrene-co-methyl methacrylate) was prepared by stable free radical polymerization at  $135^\circ\text{C}$ . The reaction scheme is shown below:



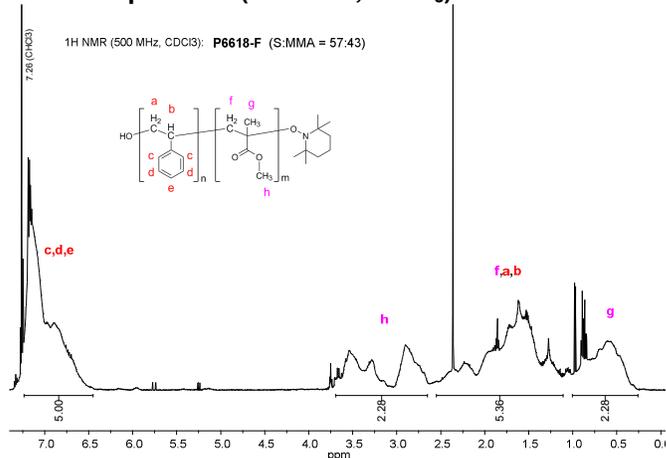
**Characterization:**

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  $^1\text{H}$  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  $10^\circ\text{C}/\text{min}$ .

**Solubility:**

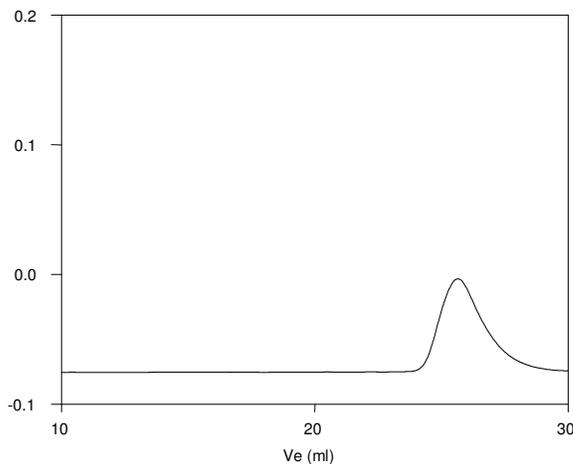
Poly(styrene-co-methyl methacrylate) is soluble in THF, DMF, toluene, and chloroform. It precipitates from methanol and hexanes.

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



**SEC elugram of the copolymer:**

**P6618F-SMMAranOHT**



$M_n=4500$ ,  $M_w=6800$ ,  $PI=1.5$   
PS%mol= 57 (calculated from NMR)

**DSC thermogram (second heating scan):**

