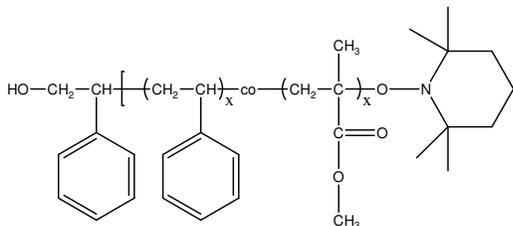


**Sample:** Poly(Styrene-co-Methyl Methacrylate),  $\alpha$ -Hydroxy,  $\omega$ -TEMPO-moiety terminated random copolymer

**Sample #** P20201A-SMMAranOHT

**Structure:**



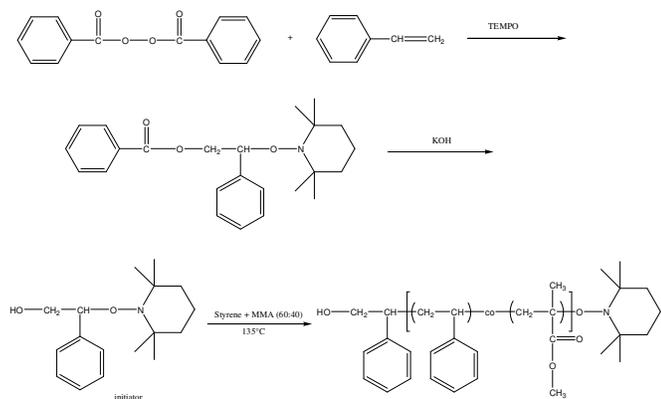
**Composition:**

|                           |                 |
|---------------------------|-----------------|
| $M_n \times 10^3$ (g/mol) | $M_w/M_n$ (PDI) |
| 7.2                       | 1.32            |

|                               |
|-------------------------------|
| Polystyrene content: 54 mol % |
|-------------------------------|

**Synthesis:**

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



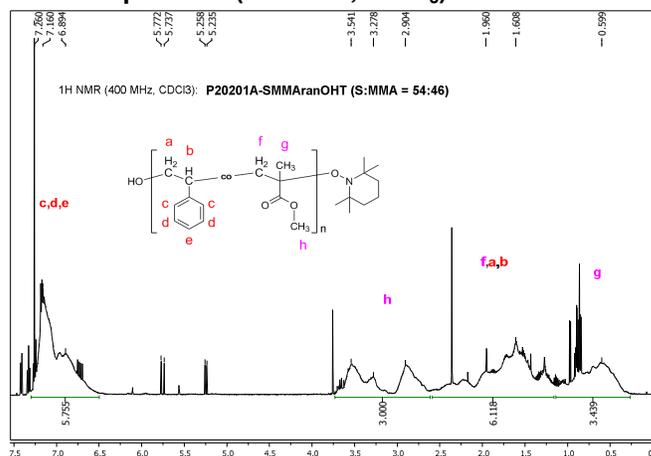
**Characterization:**

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  $^1\text{H}$  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 3–3.6 ppm.

**Solubility:**

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

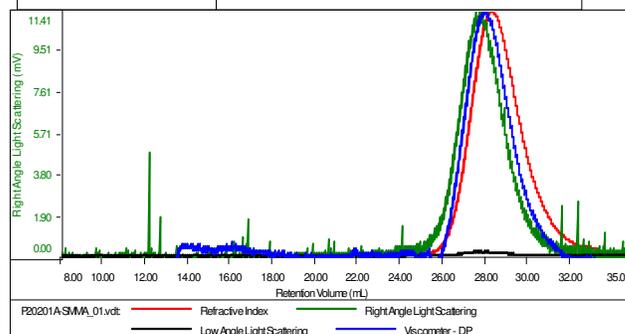
**$^1\text{H}$  NMR spectrum (500 MHz,  $\text{CDCl}_3$ ):**



**SEC elugram of the copolymer:**

**Sample ID:** P20201A-SMMAranOHT

|                       |                            |
|-----------------------|----------------------------|
| Concentration (mg/mL) | 8.2007                     |
| Sample conc (mL/g)    | 0.1600                     |
| Method File           | PS80K-March6-2015-0000.vcm |
| Column Set            | 3x PL 1113-6300            |
| Solvent               | THF                        |



| Sample              | MW Number Average (Da) | MW Weight Average (Da) | MW at Peak (Da) | Polydispersity | Intrinsic Viscosity (dL/g) |
|---------------------|------------------------|------------------------|-----------------|----------------|----------------------------|
| P20201A-SMMA_01.vit | 7,247                  | 9,562                  | 8,747           | 1.320          | 0.0927                     |