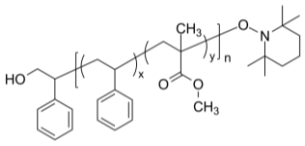
Sample Name: **Poly(styrene–co–methyl methacrylate), (α-hydroxy, ω-TEMPO)-terminated**

Sample #: **P43536B-SMMAranOHT**

Structure:



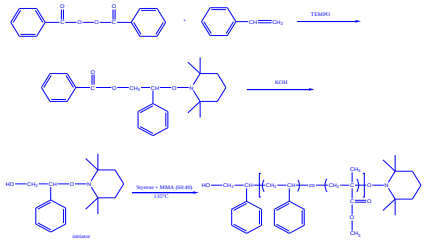
Composition:

Mn x 10^3	Mw/Mn (PDI)
16.0	1.11

T_g (°C): 89.0
Styrene content mol%: 75%

Synthesis Procedure:

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



Characterization:

An aliquot of the copolymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI), the instrument calibrated by Polystyrene standards. The chemical composition was calculated from ^{1}H-NMR spectroscopy by comparing the peak area of the phenyl protons at 6.8-7.4 ppm with the peak area of methyl methacrylate at 2.6-3.6 ppm.

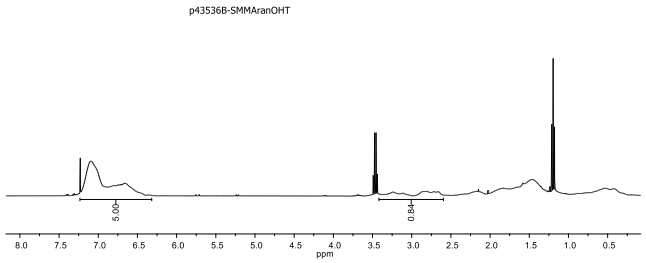
Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min.The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

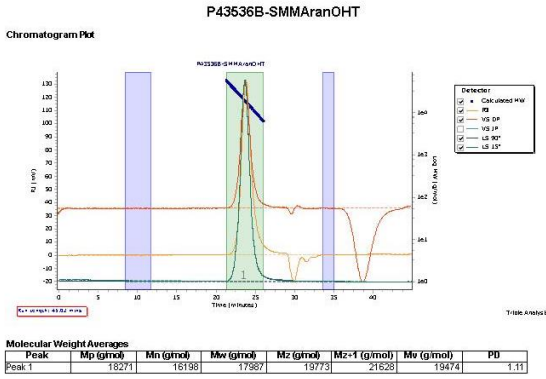
Solubility:

Poly(styrene-co-methyl methacrylate) is soluble in THF, DMF, Toluene and chloroform. Precipitate from methanol and Hexanes.

^{1}H NMR spectrum of the polymer:



SEC profile of the random copolymer



DSC thermogram of the random polymer: