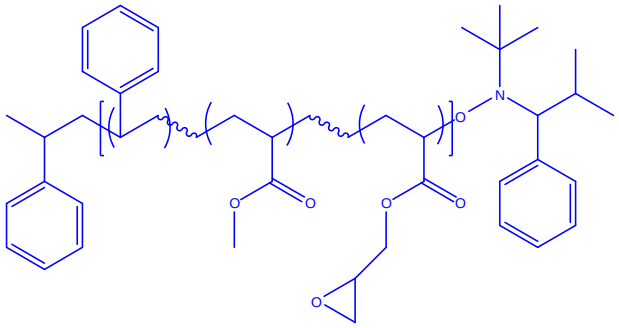
Sample Name:
Random Copolymer Poly(styrene-co-methyl methacrylate-co-glycidyl methacrylate)

Sample #: P6414F2-SMMAGMAran

Structure:

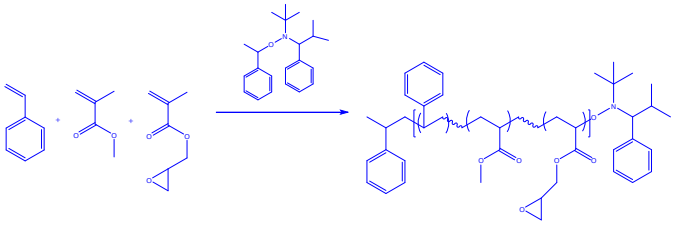


Composition:
PS (mol%) : 60%, GMA: 1%

Mn x 10^3 S-co-MMA-co-GMA	PDI
31.6	1.23
T_g for the random copolymer	91°C

Synthesis Procedure:

Random Copolymer is prepared by nitroxide-mediated radical polymerization of styrene, GMA and MMA .

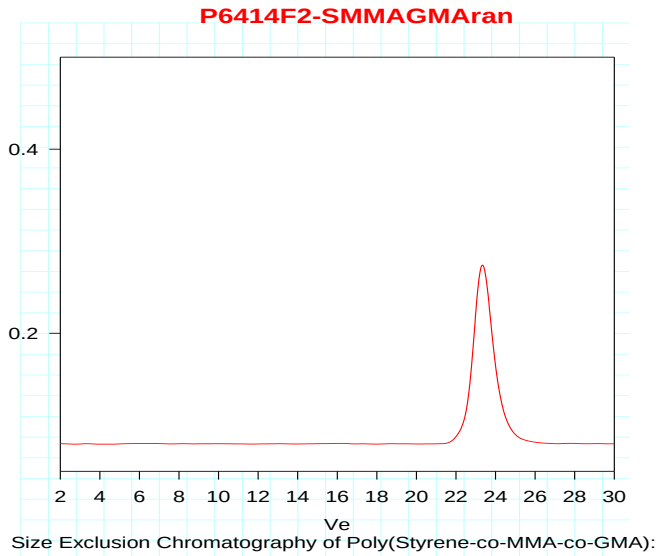


Characterization:
The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from ^{1}H-NMR spectroscopy by comparing the peak area the aromatic protons at 6.66-7.05 ppm with the protons of methyl methacrylate at about 0.8-3.8 ppm that deducts the contribution of the styrene back bone protons.

Thermal analysis:
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 20°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).

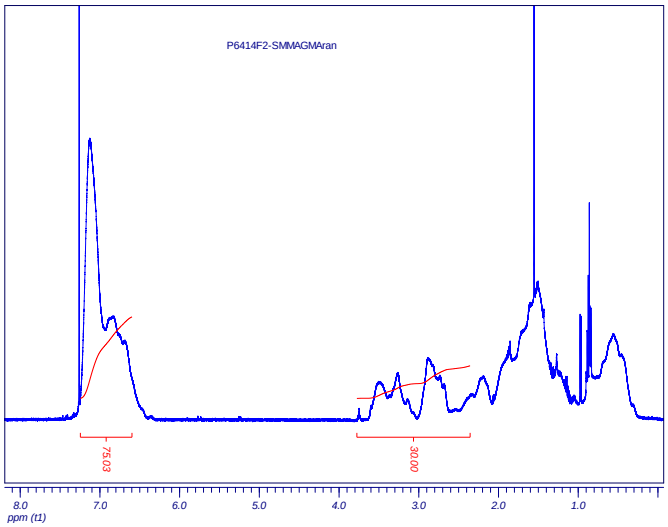
Solubility:
Random Copolymer Poly(styrene-co-MMA-co-GMA) is soluble in $CHCl_3$, THF, DMF, toluene and precipitated out from methanol.

SEC of the random copolymer:



Size Exclusion Chromatography of Poly(Styrene-co-MMA-co-GMA):
M_n= 31600, M_w= 38900, M_w/M_n =1.23

Proton NMR of copolymer:



DSC thermogram for the sample: