Sample Name:

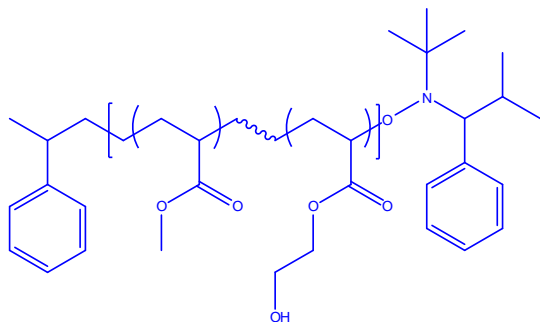**Random Copolymer Poly(methyl methacrylate-co-hydroxyethyl methacrylate)**
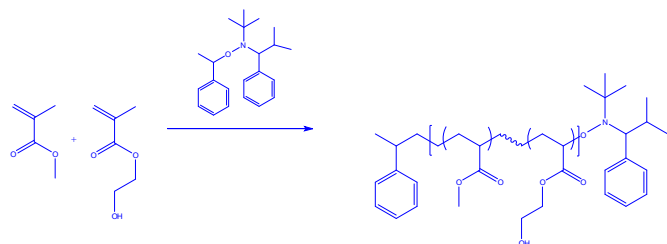
Sample #: P6410F2-MMAHEMAran

Structure:

Composition:

PMMA (mol%) : 98%, HEMA: 2%

Mn x 10³ MMA-co-HEMA	PDI
43.8	1.47
T$_g$ for the random copolymer	**113ºC**

Synthesis Procedure:

Random Copolymer is prepared by nitroxide-mediated radical polymerization of styrene, HEMA 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 ¹H-NMR spectroscopy.
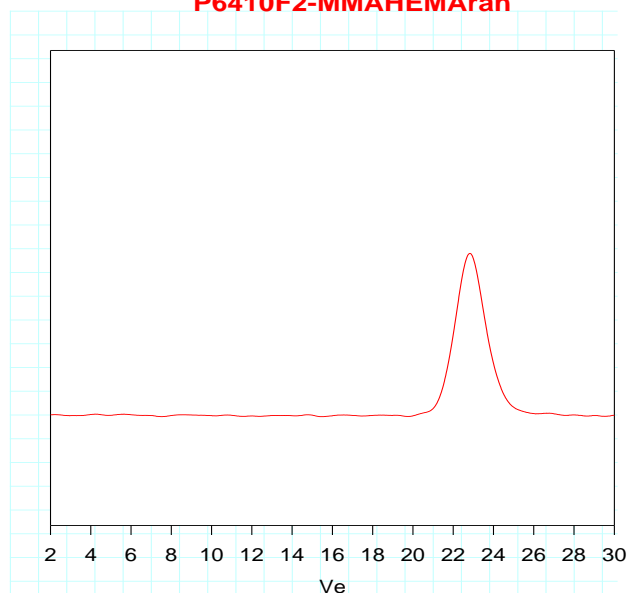
Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10ºC/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(MMA-co-HEMA) is soluble in CHCl₃, THF, DMF, toluene and precipitated out from methanol.
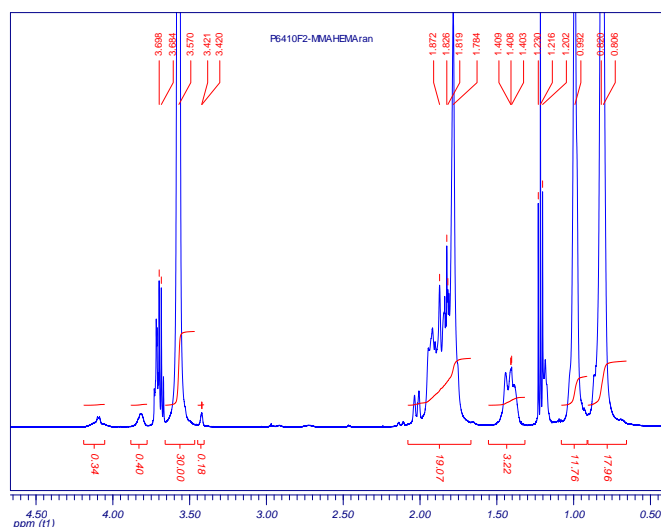
SEC of the random copolymer:

P6410F2-MMAHEMAran

Size Exclusion Chromatography of Poly(MMA-co-HEMA):

M$_n$= 43800, M$_w$= 64400, M$_w$/M$_n$ =1.47

Proton NMR of copolymer:

DSC thermogram for the sample: