Sample Name:

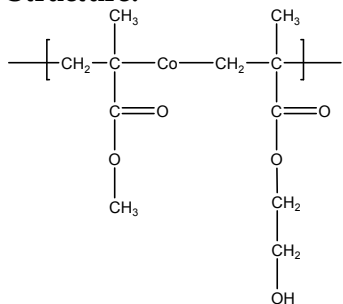**Random Copolymer Poly(methyl methacrylate-co-hydroxyethyl methacrylate)**

Sample #: P13130-MMAHEMAran

Structure:

Composition:

PMMA: 75 mole% : HEMA: 25%

Mn x 10^3 MMA-co-HEMA	PDI
32.0	1.25
T_g for the random copolymer	121 ^{0}C

Synthesis Procedure:

Random Copolymer is prepared by living anionic polymerization of MMA and trimethyl siloxy ethyl methacrylate followed by deprotection of OH of HEMA monomer.

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 methyl ester at 3.6ppm m with the protons of methyl methacrylate at about 0.8-1.2 ppm that deducts the contribution of the methyl protons of the HEMA moiety.

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:
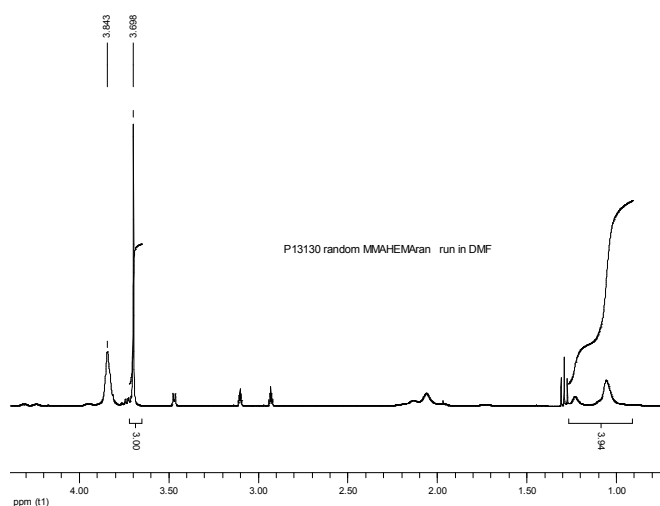
Random Copolymer Poly(MMA-co-HEMA) is soluble in , THF, DMF.

SEC of the random copolymer:

P13130-MMAHEMAran
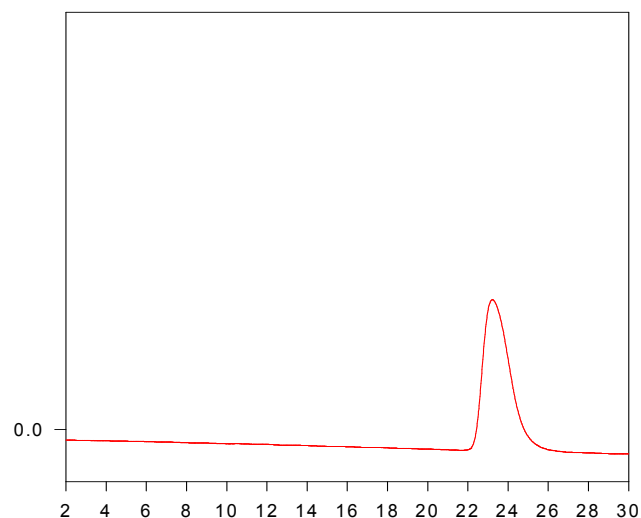
Size Exclusion Chromatography of Poly(MMA-co-HEMA):

M_n= 32000, M_w= 40000, M_w/M_n =1.25

Proton NMR of copolymer:

P13130 random MMAHEMAran run in DMF

DSC thermogram for the sample: