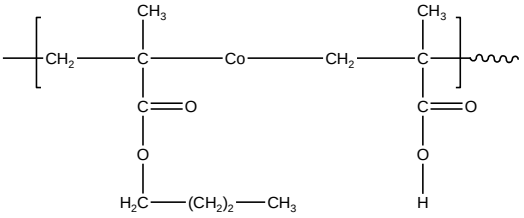
Sample Name:
Random Copolymer Poly(n-Butyl methacrylate-co-methacrylic acid)
Sample #: P5788A-nBuMAMAA ran

Structure:



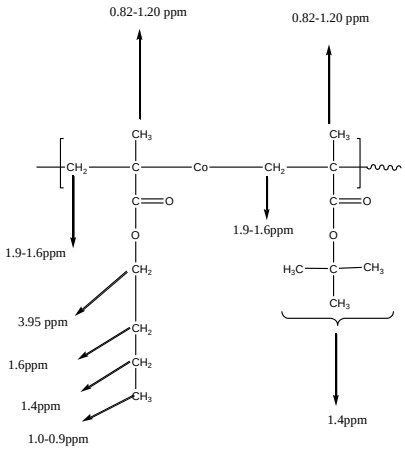
Composition: PMAA: by titration 7%

Mw × 10^3 (Mn) PnBuMA-co-MAA	PDI
798.0 (380.0)	2.1
T_g of random polymer nBuMAtBuMAran	42 oC
T_g of random polymer nBuMAMAAAran	46 oC
nBuMA:tert.BuMA	90:10
Tacticity of the polymer Syndio:hetero:iso fractions	67:27:6

% of PMAA in the copolymer by titration (2.7 ml 0.1021(N) NaOH consumed for 50mg of polymer)

Synthesis Procedure:
Random Copolymer Poly(n-Butylmethacrylate-co-tert.butyl methacrylate) is prepared by anionic polymerization. The product was hydrolysed in dioxane to convert poly tert.BuMA fraction to methacrylic acid.

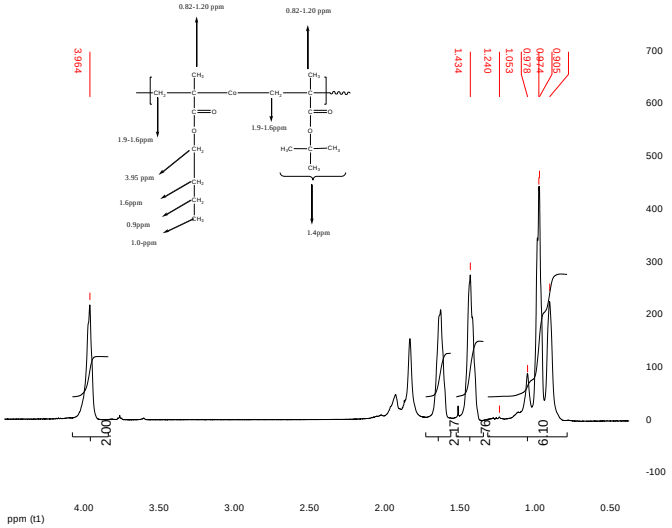
Characterization:
The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from ^{1}H-NMR spectroscopy by comparing the peak area of the protons of methylene (-CH2) of nBuMA at 4ppm and tert.butyl of tert.BuMA at about 1.4 ppm.



Solubility:

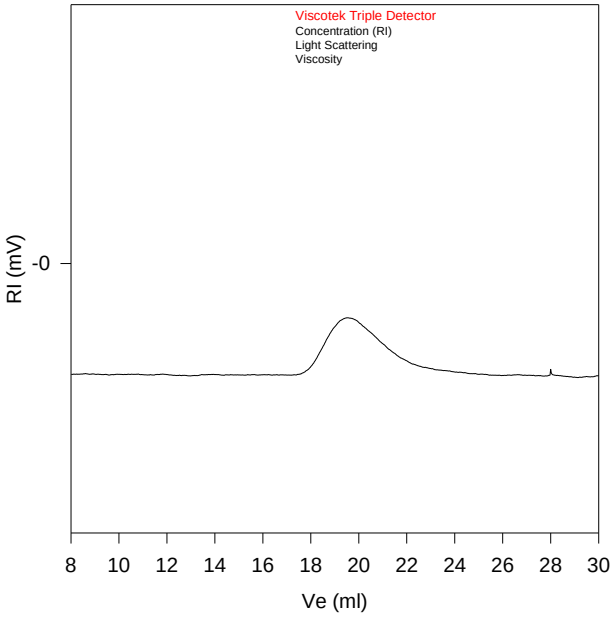
$CHCl_3$	soluble
THF	soluble
Methanol	Insoluble
DMF	Soluble

^{1}H-NMR Spectrum of the random copolymer:



SEC of the random copolymer:

P5788-nBuMAtBuMAran

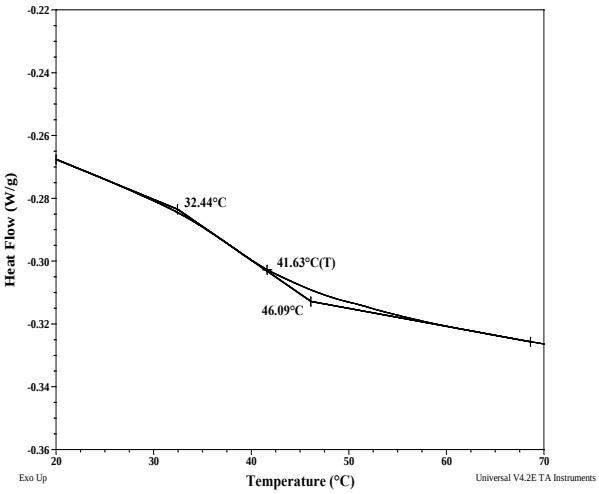


Size Exclusion Chromatography of Copolymer:
—— M_n = 380,000, M_w = 798,000, M_w/M_n = 2.1

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).

Thermograms for random polymer nBuMAtBuMAran:



Thermograms for random polymer nBuMAMAAAran: