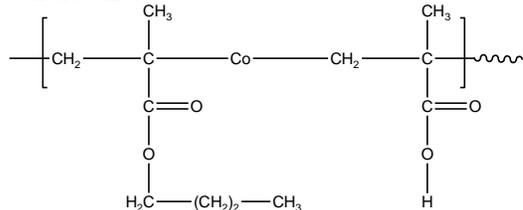


Sample Name:

Random Copolymer Poly(n-Butyl methacrylate-co-methacrylic acid)

Sample #: P5774A-nBuMAMAA ran

Structure:



Composition: PMAA 15% by titration

Mw × 10 ³ (Mn) PnBuMA-co-MAA	PDI
228(198)	1.15
T _g of random polymer nBuMA _t BuMA _r an	49 °C
T _g of random polymer nBuMAMAA _r an	83 °C
nBuMA:tert.BuMA	65:35
Tacticity of the polymer Syndio:hetero:iso fractions	71:25:4

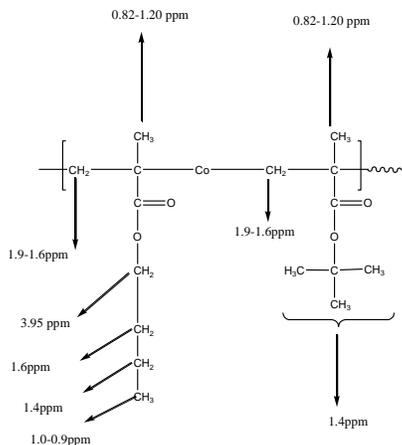
% of PMAA in the copolymer by titration 15.0%
(0.1021N NaOH 950 micro L for 50mg of polymer)

Synthesis Procedure:

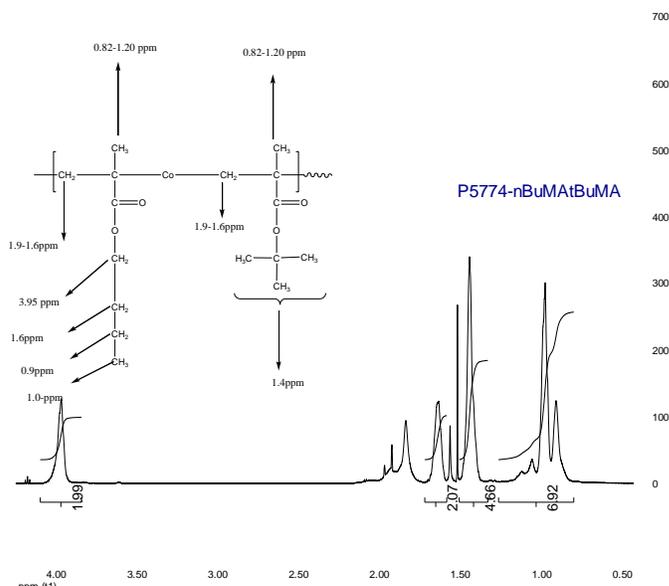
Random Copolymer Poly(n-Butylmethacrylate-co-tert.butyl methacrylate) is prepared by anionic polymerization. The product was hydrolysed in dioxane to convert poly tert.BuMA fraction to methacrylic acid.

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 ¹H-NMR spectroscopy by comparing the protons of methylene (-CH₂) of nBuMA at 4ppm and tert.butyl of tert.BuMA at about 1.4 ppm.

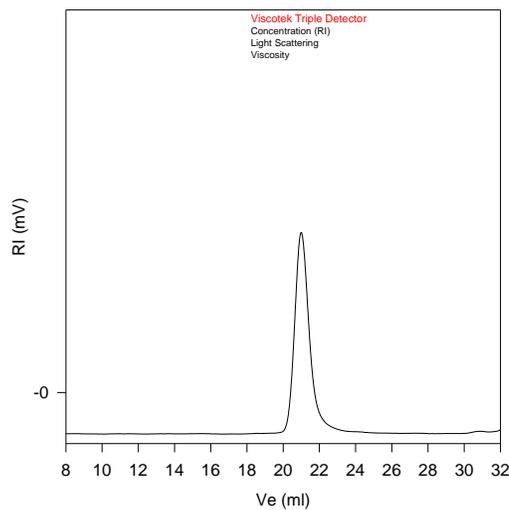


¹H-NMR Spectrum of the random copolymer:



SEC of the random copolymer:

P5774-nBuMA_tBuMA_ran



Size Exclusion Chromatography of Copolymer:
— M_n = 210,000, M_w = 247,000, M_w/M_n = 1.15

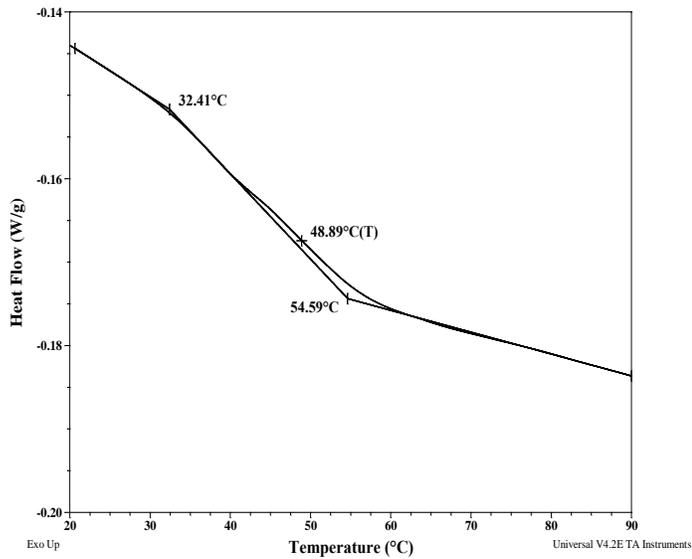
Solubility:

CHCl ₃	swell
THF	Soluble
Methanol	Insoluble
DMF	Soluble

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 nBuMAAtBuMAran:



Thermograms for random polymer nBuMAMAran:

