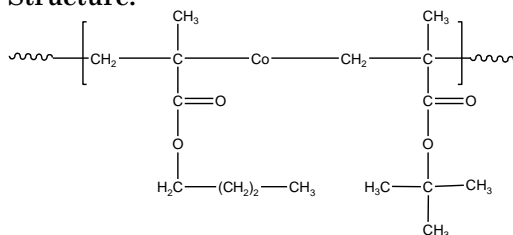


Sample Name:

Random Copolymer Poly(n-Butyl methacrylate-co-tert.-butyl methacrylate)

Sample #: P5774-n-BuMA-tBuMA ran

Structure:



Composition:

$M_n \times 10^3$ PnBuMA-co-tert.BuMA	PDI
210.0	1.15
T_g of random polymer	49 °C
nBuMA:tBuMA ratio	65:35
Syndio:hetero:iso fraction	71:25:4

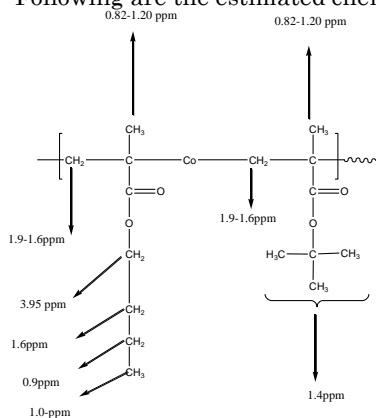
Synthesis Procedure:

Random Copolymer Poly(n-Butylmethacrylate-co-tert.butyl methacrylate) is prepared by anionic polymerization.

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 $^1\text{H-NMR}$ spectroscopy by comparing the peak area of the protons of methylene ($-\text{CH}_2$) of nBuMA at 4ppm and tert.butyl of tert.BuMA at about 1.4 ppm. or considering the entire region between 0.8 to 1.3 ppm for 11 protons (6 α -methyl and 5 from CH_3CH_2 - of n Butyl group).

Following are the estimated chemical shifts:



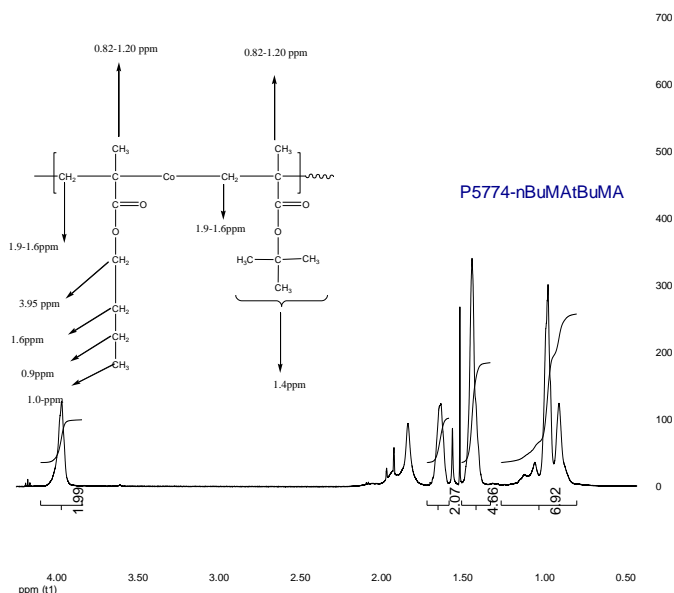
Thermal analysis

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:

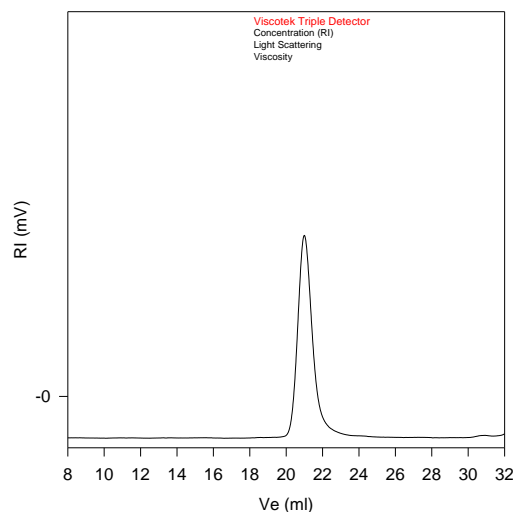
The polymer is soluble in CHCl_3 , THF, DMF, toluene and precipitated out from methanol and water.

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



SEC of the random copolymer:

P5774-nBuMA-tBuMAran



Size Exclusion Chromatography of Copolymer:

— $M_n = 210,000$, $M_w = 247,000$, $M_w/M_n = 1.15$

Thermogram for the sample:

