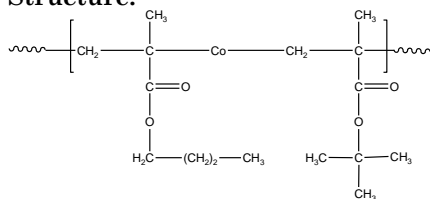


Sample Name:

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

Sample #: P5770-n-BuMAAtBuMA ran

Structure:**Composition:**

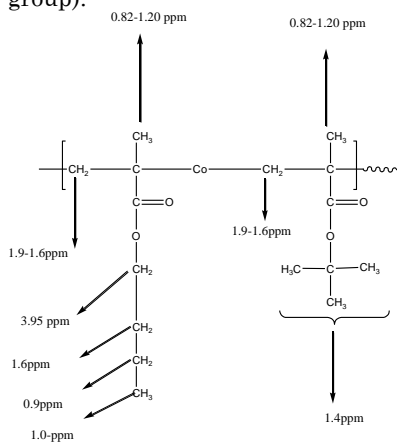
$M_n \times 10^3$	PDI
PnBuMA-co-tert.BuMA	
155.0	1.5
T_g of random polymer	57 °C
Ratio of nBuMA:tBuMA	55:45
Syndio:hetero:iso fraction	70:28:2

Synthesis Procedure:

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

Characterization:

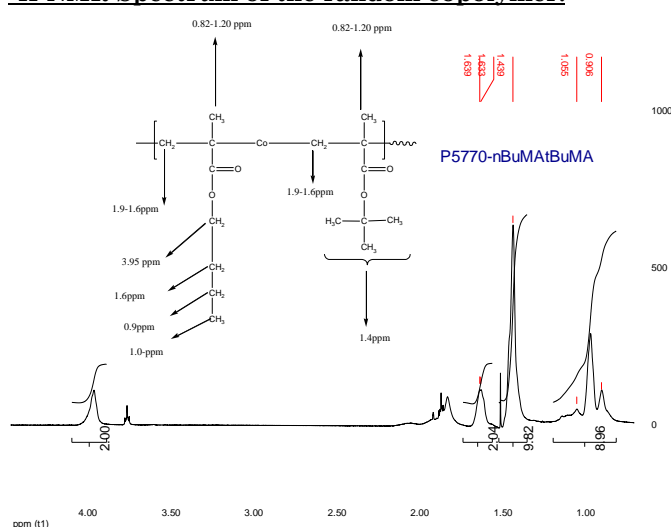
The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from $^1\text{H-NMR}$ spectroscopy by comparing the peak area of the protons of methylene ($-\text{CH}_2$) of nBuMA at 4ppm and tert.butyl 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).

**Thermal analysis**

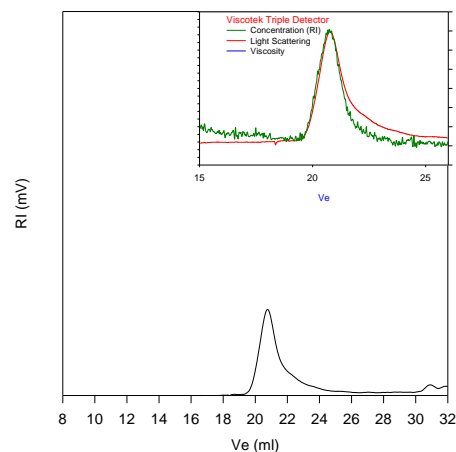
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

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:**

P5770-nBuMAAtBuMAran



Size Exclusion Chromatography of Copolymer:

$M_n = 155,000$, $M_w = 232,000$, $M_w/M_n = 1.5$
Solution Viscosity in THF at 35 °C: 0.952 dL/g
dn/dc in THF at 35 °C: 0.084 mL/g
Rgw: 19.76 nm

Thermogram for the sample: