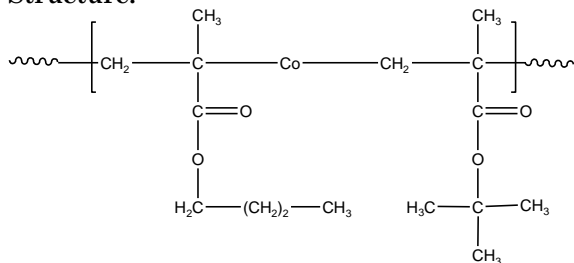


Sample Name:

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

Sample #: P5776F1-n-BuMAAtBuMA ran

Structure:**Composition:**

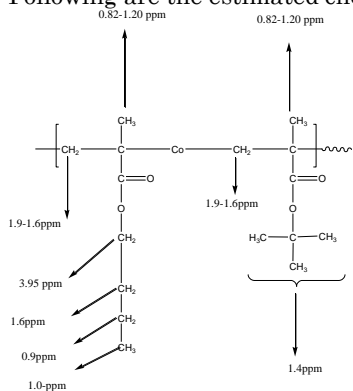
$M_n \times 10^3$ PnBuMA-co-tert.BuMA	PDI
380.0	1.18
T_g of random polymer	45 °C
nBuMA:tBuMA ratio	76:24
Syndio:hetero:iso fraction	77:21:2

Synthesis Procedure:

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

Characterization:

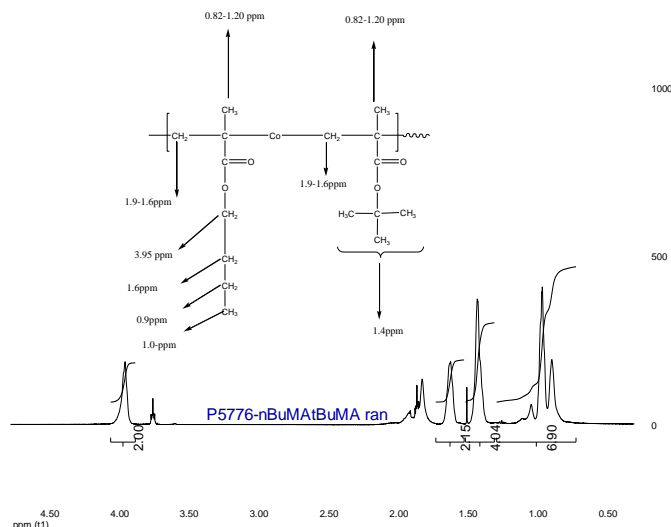
The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from $^1\text{H-NMR}$ spectroscopy by comparing the peak area of the protons of methylene ($-\text{CH}_2$) of nBuMA at 4ppm and tert.butyl of tert.BuMA at about 1.4 ppm. Following are the estimated chemical shifts:

**Thermal analysis**

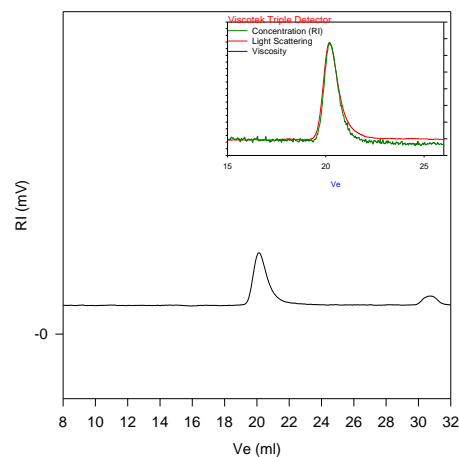
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

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:**

P5776F1-nBuMAAtBuMAran

**Size Exclusion Chromatography of Copolymer:**

$M_n = 380,000$, $M_w = 4449,000$, $M_w/M_n = 1.18$
Solution Viscosity in THF at 35 °C: 1.517 dl/g
 dn/dc in THF at 35 °C: 0.084 ml/g
Rgw: 25.94 nm

Thermogram for the sample: