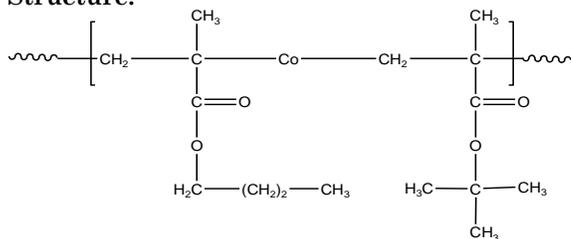


### Sample Name:

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

Sample #: P5785-n-BuMAAtBuMA ran

### Structure:



### Composition:

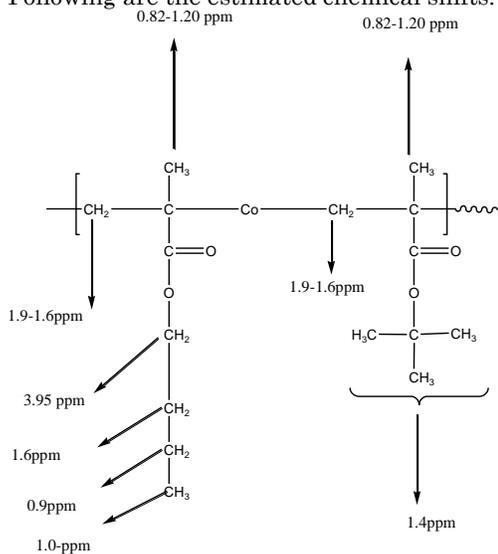
$M_n \times 10^3$	PDI
PnBuMA-co-tert.BuMA	
750.0	1.3
$T_g$ of random polymer	97 °C
nBuMA:tert.BuMA	55:45
Syndio:hetero:iso fraction	67:27:6

### 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 (-CH<sub>2</sub>) of nBuMA at 4ppm and tert.butyl of tert.BuMA at about 1.4 ppm. Following are the estimated chemical shifts:



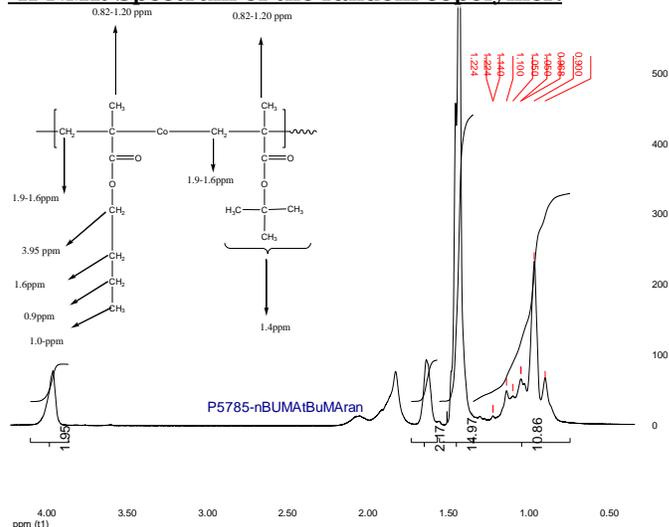
### Thermal analysis

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:

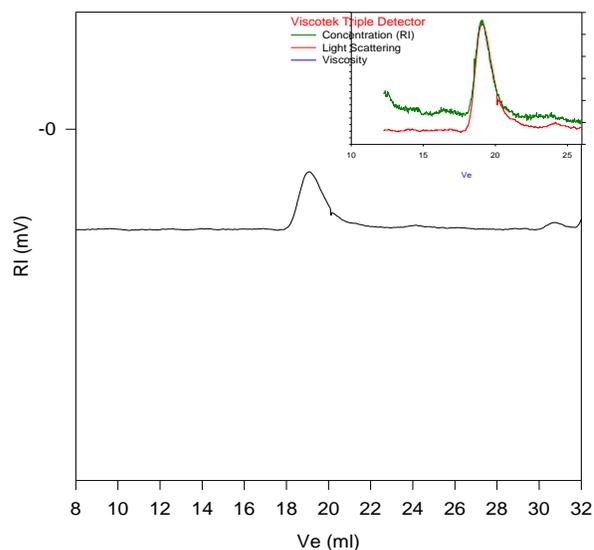
The polymer is soluble in CHCl<sub>3</sub>, THF, DMF, toluene and precipitated out from methanol and water.

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



### SEC of the random copolymer:

P5785-nBuMAAtBuMAran



### Size Exclusion Chromatography of Copolymer:

$M_n = 750,000$ ,  $M_w = 975,000$ ,  $M_w/M_n = 1.30$   
Solution Viscosity in THF at 35 °C: 2.526 dl/g  
 $dn/dc$  in THF at 35 °C: 0.084 ml/g  
Rgw: 42.12 nm

### Thermogram for the sample:

