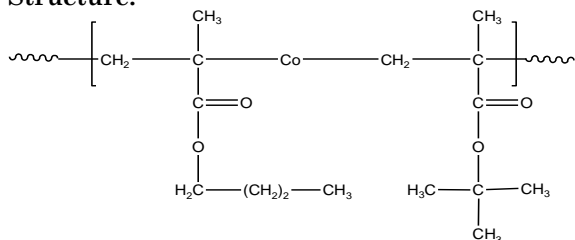


**Sample Name:**

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

**Sample #:** P5787-n-BuMA-tBuMA ran

**Structure:****Composition:**

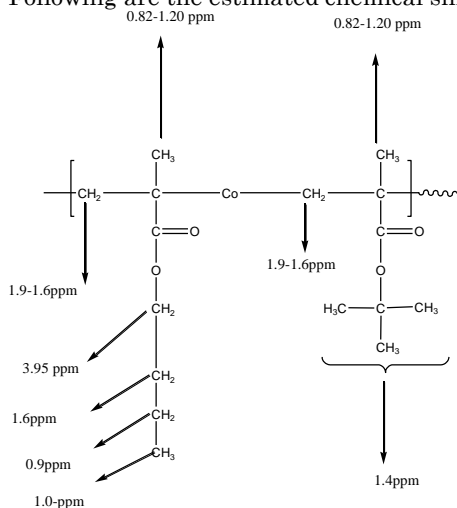
$M_n \times 10^3$	PDI
PnBuMA-co-tert.BuMA	
520.0	1.28
$T_g$ of random polymer	114 °C
nBuMA:Tert.BuMA	55:45
Syndio:hetero:iso fraction	77:21:2

**Synthesis Procedure:**

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

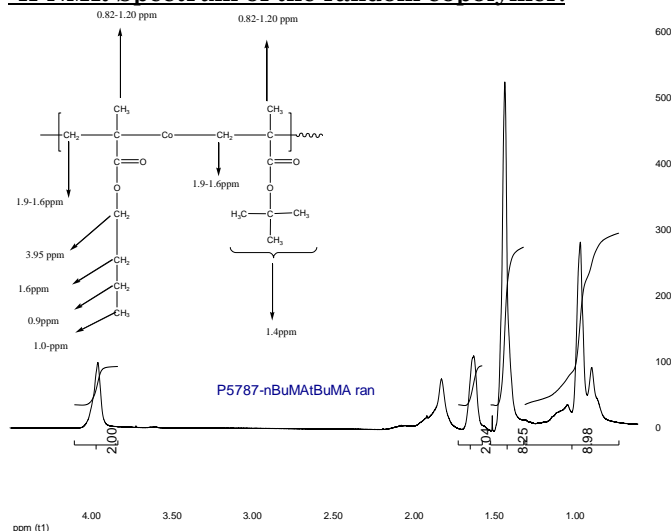
**Characterization:**

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:

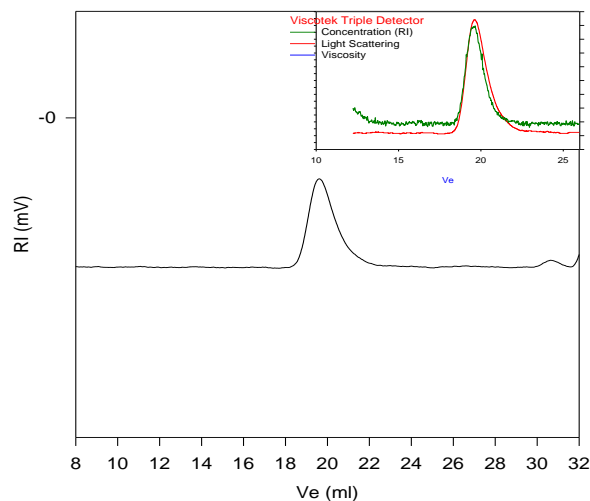
**Thermal analysis**

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of  $10^\circ\text{C}/\text{min}$ . 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  $\text{CHCl}_3$ , THF, DMF, toluene and precipitated out from methanol and water.

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

**P5787-nBuMA-tBuMAran**

**Size Exclusion Chromatography of Copolymer:**

$M_n = 520,000$ ,  $M_w = 665,500$ ,  $M_w/M_n = 1.28$   
Solution Viscosity in THF at  $35^\circ\text{C}$ : 1.735dl/g  
 $dn/dc$  in THF at  $35^\circ\text{C}$ : 0.084 ml/g  
Rgw: 32.08nm

**Thermogram for the sample:**