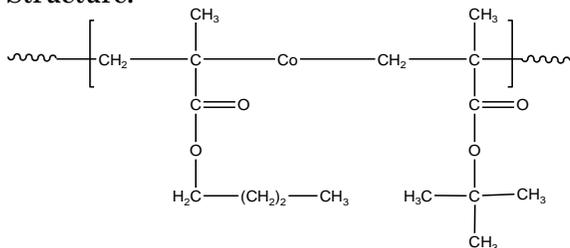


**Sample Name:**

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

**Sample #: P5793-n-BuMA:tBuMA ran**

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

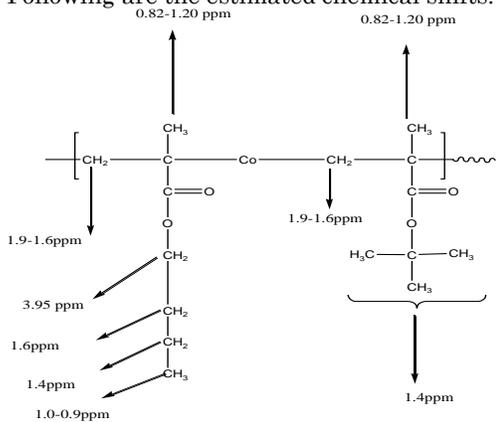
$M_n \times 10^3$ PnBuMA-co-tert.BuMA	PDI
610.0	1.5
$T_g$ of random polymer	54
nBuMA:tBuMA ratio	66:34
Syndio:hetero:iso fraction	72:24:4

**Synthesis Procedure:**

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

**Characterization:**

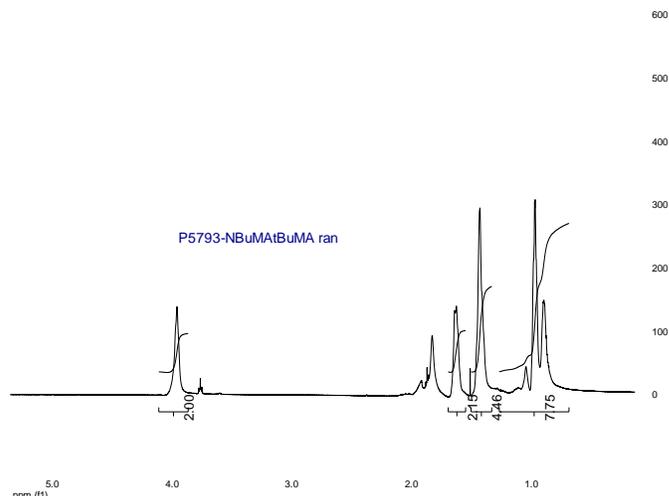
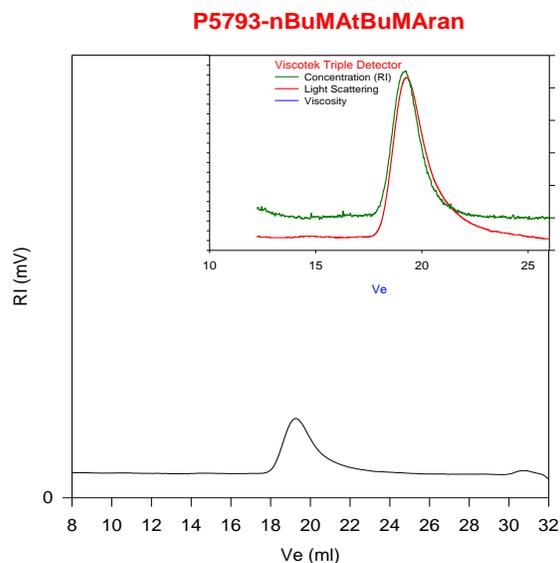
The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from  $^1\text{H-NMR}$  spectroscopy by comparing the peak area of the protons of methylene (-CH<sub>2</sub>) of nBuMA at 4ppm and tert.butyl 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:****Size Exclusion Chromatography of Copolymer:**

$M_n = 610,000$ ,  $M_w = 915,000$ ,  $M_w/M_n = 1.5$   
Solution Viscosity in THF at 35 oC: 2.012dl/g  
 $dn/dc$  in THF at 35 oC: 0.084 ml/g  
Rgw: 37.11nm

**Thermogram for the sample:**