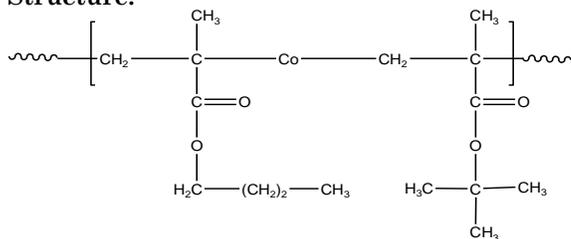


Sample Name:

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

Sample #: P5787F1-n-BuMAAtBuMA ran

Structure:



Composition:

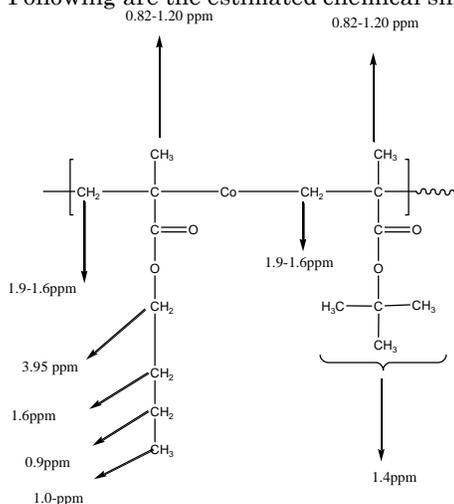
Mn × 10 ³ PnBuMA-co-tert.BuMA	PDI
525.0	1.28
T _g of random polymer	114 °C
nBuMA:Tert.BuMA	55:45
Syndio:hetero:iso fraction	77:21:2

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 ¹H-NMR spectroscopy by comparing the peak area of the protons of methylene (-CH₂) of nBuMA at 4ppm and tert.butyl of tert.BuMA at about 1.4 ppm. Following are the estimated chemical shifts:

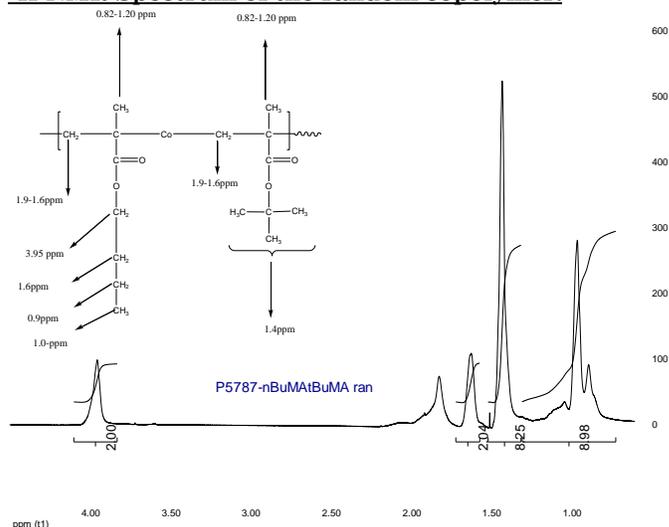


Thermal analysis

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).

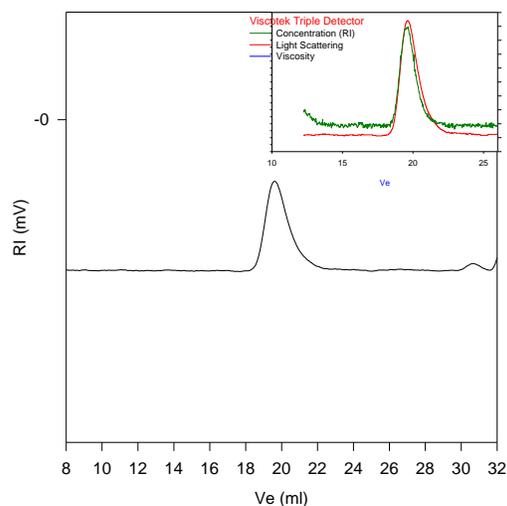
Solubility: The polymer is soluble in CHCl₃, THF, DMF, toluene and precipitated out from methanol and water.

¹H-NMR Spectrum of the random copolymer:



SEC of the random copolymer:

P5787F1-nBuMAAtBuMAran



Size Exclusion Chromatography of Copolymer:

M_n = 525,000, M_w = 665,500, M_w/M_n = 1.28
Solution Viscosity in THF at 35 °C: 1.735 dl/g
dn/dc in THF at 35 °C: 0.084 ml/g
R_{gw}: 32.08 nm

Thermogram for the sample:

