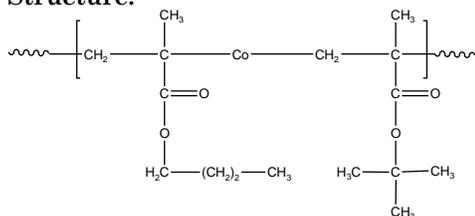


Sample Name:

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

Sample #: P5771-n-BuMAAtBuMA ran

Structure:



Composition:

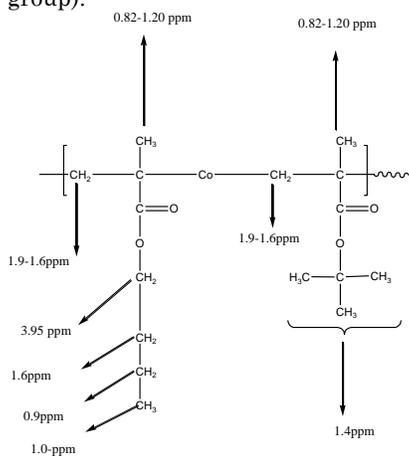
| Mn × 10 ³ PnBuMA-co-tert.BuMA | PDI |
|---|---------|
| 230.0 | 1.25 |
| T _g of random polymer | 57°C |
| nBuMA:tert.BuMA | 55:45 |
| Syndio:hetero:iso fraction | 70:28:6 |

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 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, or considering the entire region between 0.8 to 1.3 ppm for 11 protons (6 α-methyl and 5 from CH₃CH₂- of n Butyl group).

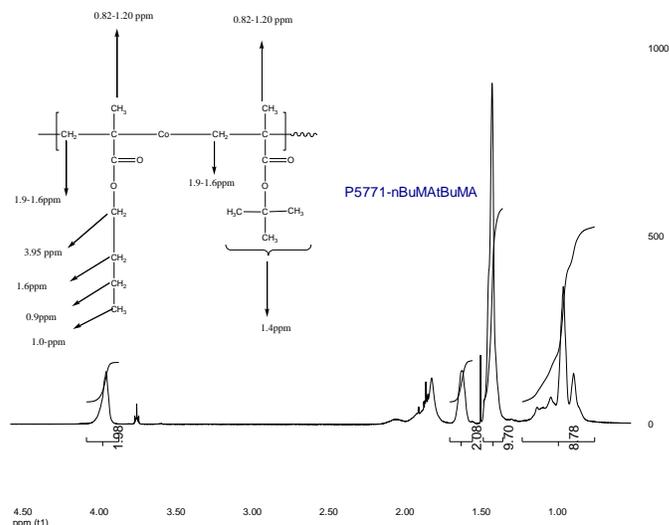


Thermal analysis

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).

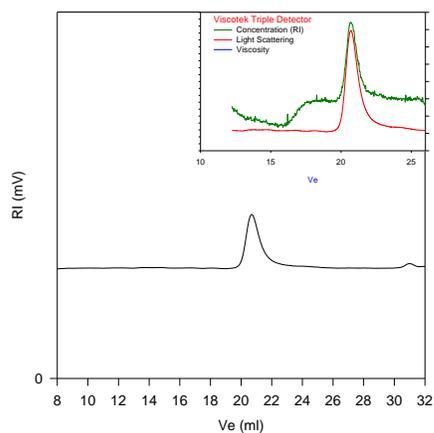
Solubility: The polymer is soluble in CHCl₃, THF, DMF, toluene and precipitated out from methanol and water.

¹H-NMR Spectrum of the random copolymer:



SEC of the random copolymer:

P5771-nBuMAAtBuMAran



Size Exclusion Chromatography of Copolymer:

— M_n = 230,000, M_w = 288,000, M_w/M_n = 1.25
Solution Viscosity in THF at 35 °C: 1.121 dl/g
dn/dc in THF at 35 °C: 0.084 ml/g
Rgw: 21.21 nm

Thermogram for the sample:

