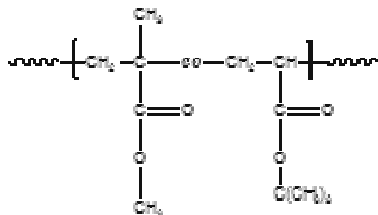


Sample Name: Random Copolymer Poly(methyl methacrylate-co-t-butyl acrylate)

Sample #: P1692-MMAAtBuAran

Structure:



Composition:

PMMA (mol%) : 25.0 PMMA wt% 20.0

| | |
|---------------------------------------|------|
| Mn x 10 ³ PMMA-co-PtBuA | PDI |
| 201.5 | 1.28 |
| T _g of random polymer | 57°C |

Synthesis Procedure:

Random Copolymer Poly(styrene-co-methyl methacrylate) is prepared by either anionic or group transfer or radical polymerization of methyl methacrylate and t-butyl acrylate.

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 the aromatic protons of ppm with the protons of methyl methacrylate at about ppm that deducts the contribution of the styrene back bone protons.

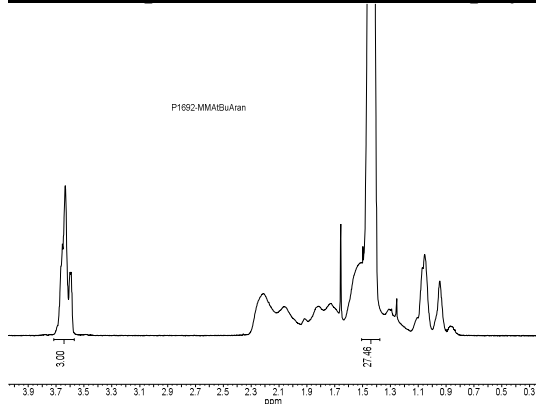
Thermal analysis

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.

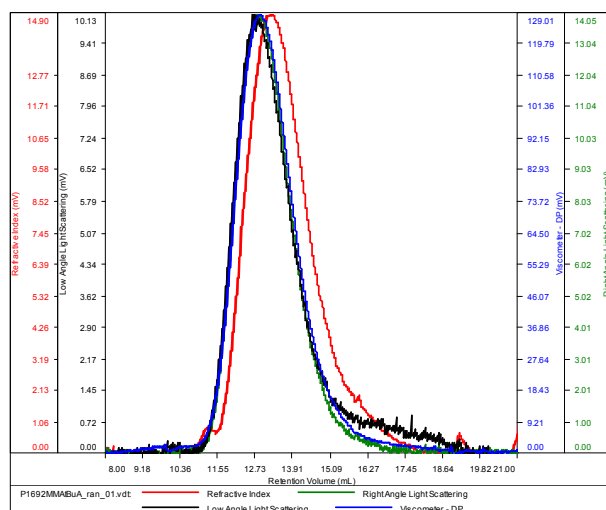
¹H-NMR Spectrum of the random copolymer:



SEC of the random copolymer:

P1692-MMAAtBuAran

| | |
|-----------|-------------------------|
| Conc | 3.3320 |
| dn/dc | 0.0650 |
| Solvent | DMF w 0.023M LiBr |
| Flow Rate | 0.7000 |
| Method | PS80kMarch2017-0002.vcm |



| Sample | Mn | Mw | Mp | Mw/Mn | IV |
|--------------------------|---------|---------|---------|-------|--------|
| P1692MMAAtBuA_ran_01.vdt | 201,527 | 258,747 | 252,926 | 1.284 | 0.9286 |

DSC Thermogram for the sample:

