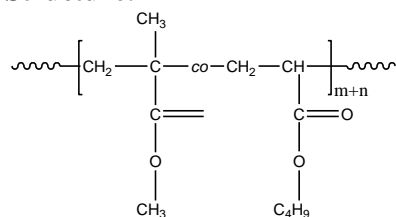


Sample Name: Random Copolymer Poly(methyl methacrylate-co-n-butyl acrylate)

Sample #: P1707-MMA_nBuA_rn

Structure:



Composition:

PMMA : 70 mole%

Mn x 10 ³ PMMA-co-PnBA	PDI
140.0	1.08
T _g of random polymer	45°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 n-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.

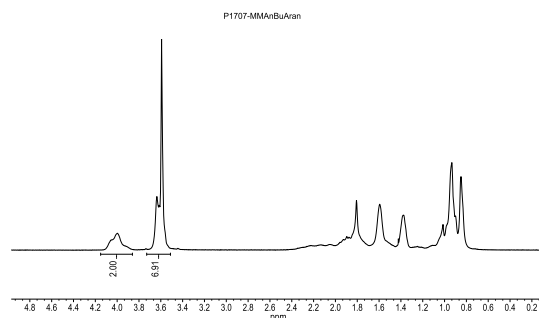
Thermal analysis

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). The T_g of the random polymer sample was found to be 45°C.

Solubility:

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

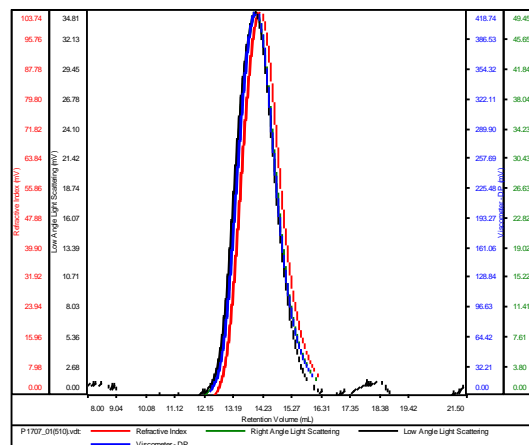
¹H-NMR Spectrum of the random copolymer:



SEC of the random copolymer:

P1707-MMA_nBuA_rn

Conc	19.2317
dn/dc	0.0650
Solvent	DMF w 0.023M LiBr
Flow Rate	0.7000
Method	PS80K-May2017-0000.vcm



Sample	Mn	Mw	Mp	Mw/Mn	IV
P1707_01(510).vcl	140,269	151,329	141,770	1.079	0.3846

DSC Thermogram for the sample:

