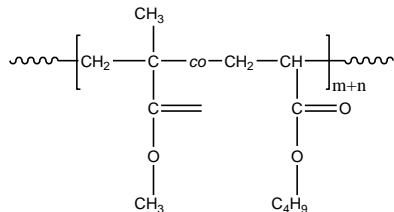Sample Name:
Random Copolymer Poly(methyl methacrylate-co-n-butyl acrylate)

Sample #: **P1703F1-MMAnBuAran**

Structure:

Composition:
PMMA : 42 mole % and 35 wt%:

Mn x 10^3 PMMA-co-PnBA	PDI
182.5	1.05
Glass transition temperature, T_g	−16 °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 ^{1}H-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 was performed on TA Instruments Q100 differential scanning calorimeter (DSC) under a nitrogen atmosphere. The glass transition temperature (Tg) of the polymer was measured at a scan rate of 10°C/min shortly after creating thermal history of the sample.

Solubility:
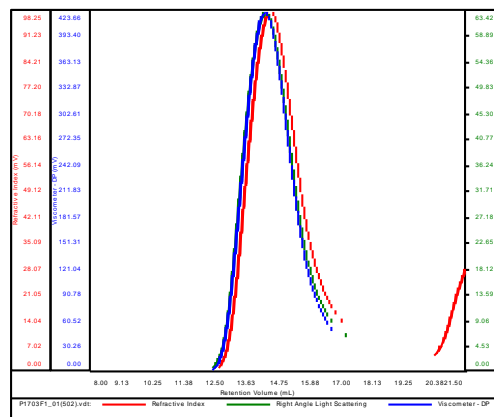The polymer is soluble in CHCl$_3$, THF, DMF, toluene and precipitated out from methanol and water.

^{1}H-NMR Spectrum of the random copolymer:
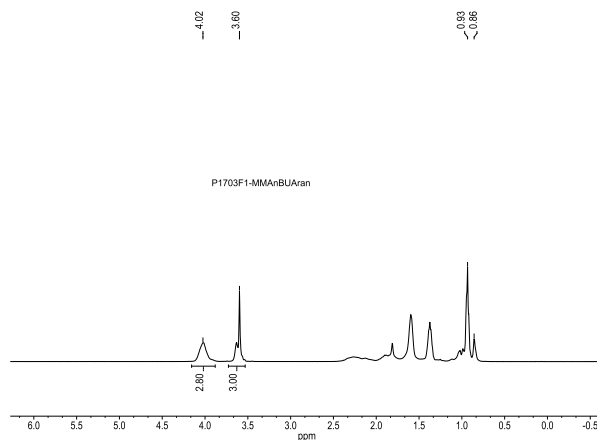
SEC of the random copolymer:

P1703F1-MMAnBUAran

Conc	26.9095
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
P1703F1_01(502).vdt	182,513	192,027	193,272	1.052	0.3751

DSC thermogram of the polymer (2nd heating scan, 10°C/min):

Sample: P1703-F1_MMAnBuAran
Size: 14.6000 mg

File: P1703-F1_MMAnBuAran.003

−16.41°C(H)
0.2571J/(g·°C)