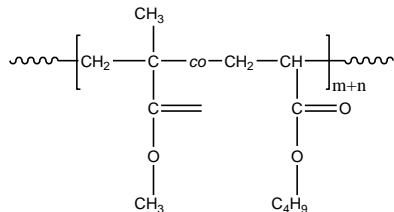Sample Name:
Random Copolymer Poly(methyl methacrylate-co-n-butyl acrylate)

Sample #: **P1908A-MMAnBuAran**

Structure:

Composition:
PMMA : 15 mole% and 11 wt%

Mn x 10^3 PMMA-co-PnBA	PDI
32.5	1.10
T_g of random polymer	-37°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 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:
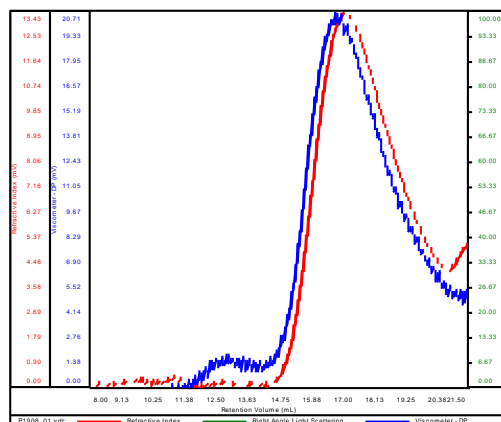The polymer is soluble in $CHCl_3$, THF, DMF, toluene and precipitated out from methanol and water.

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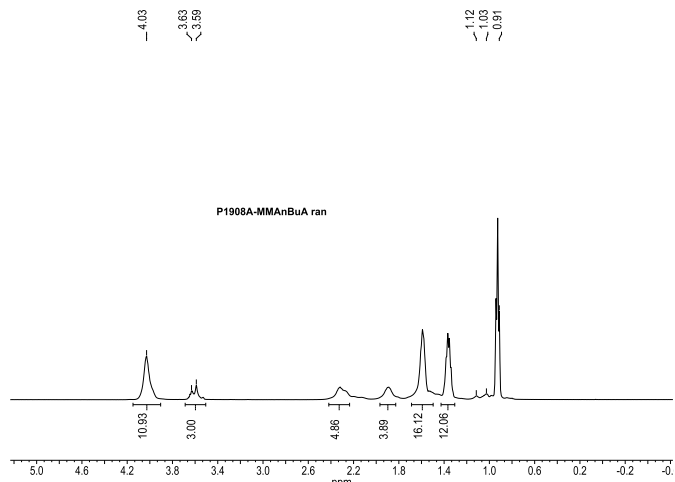
SEC elugram of the random copolymer:

P1908-MMAnBuAran

Conc	5.2925
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
P1908_01.vdt	32,248	35,456	35,631	1.099	0.1509

DSC Thermogram for the sample: