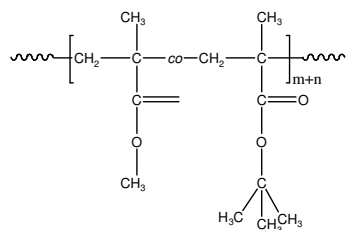**Sample Name: Random Copolymer Poly(methyl methacrylate-co-t-butyl methacrylate)**
Sample #: P19175-MMAtBuMAran

Structure:

Composition:
PMMA (83 mol%) :

Mn x 10³ PMMA-co-PtBuMA	15.5
PDI	1.12
T_g for the random copolymer:	105.2

Synthesis Procedure:
Random Copolymer Poly(methyl methacrylateand tert.Butyl methacrylate) is prepared by either anionic or group transfer or radical polymerization of methyl methacrylate and t-butyl methacrylate.

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 with the protons of methyl methacrylate that deducts the contribution of the styrene back bone protons.
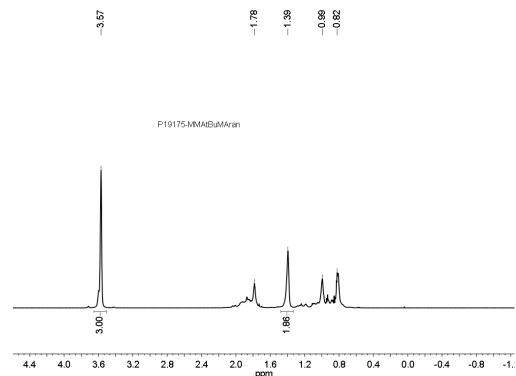
Thermal analysis:
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:
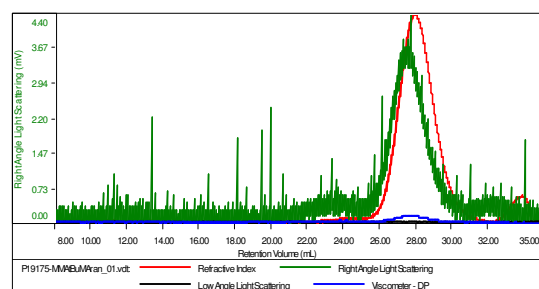The polymer is soluble in $CHCl_3$, THF, DMF, toluene and precipitated out from methanol and water.

¹H-NMR Spectrum of the random copolymer:

SEC of the random copolymer:

Sample ID: P19175-MMAtBuMAran

Concentration (mg/mL)	5.0724
Sample dn/dc (mL/g)	0.0840
Method File	PS80K-March6-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF

Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersi	Intrinsic Viscosity (dL/g)
P19175-MMAtBuMAran_01.vdt	15,226	17,133	15,453	1.125	0.0886

Thermogram for the sample: