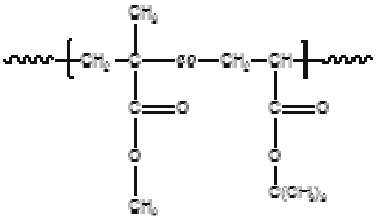
Sample Name:
Random Copolymer Poly(methyl methacrylate-co-t-butyl acrylate)

Sample #: **P1905-MMAtBuAran**

Structure:



Composition:
PMMA 28.0 mole%

Mn x 10^3 PMMA-co-PtBA	PDI
37.0	1.20
T_g of random polymer	45°C

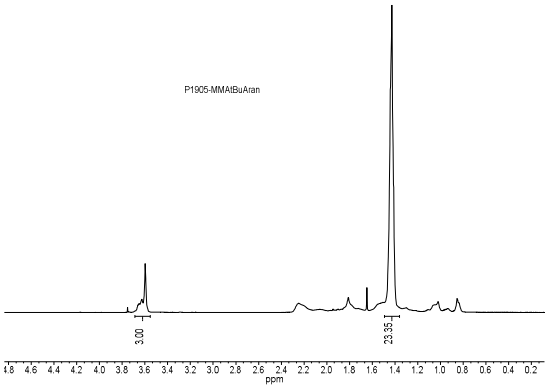
Synthesis Procedure:
Random Copolymer Poly(styrene-co-methyl methacrylate) is prepared by either anionic or group transfer or radical polymerization of methyl methacrylate and t-butyl acrylate.

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 ^{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.

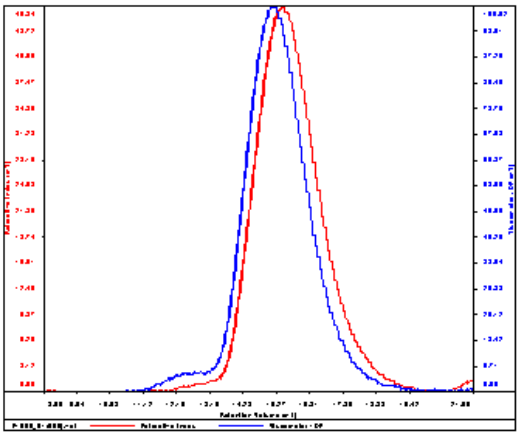
Thermal analysis
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min.The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

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:



Sample	Mn	Mw	Mp	Mw/Mn	IV
P1905_01(505)ud	37,178	44,883	39,321	1.207	0.2022

DSC Thermogram for the sample: