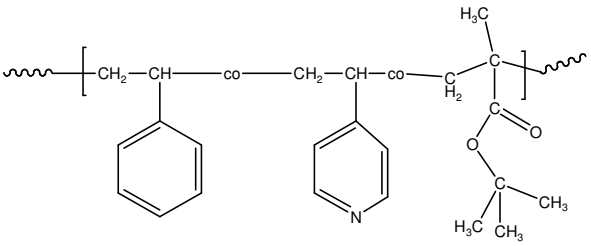
Sample Name: Random Copolymer Poly(styrene-co-4-vinypyridine-co-tert.butyl methacrylate)

Sample #: P14538-S4VPtBuMAran

Structure:



Composition:

Mn x 10^3 PS4VPtBuMAran	PDI
87.1	1.3
T_g for random copolymer	125 °C
S4VPtBuMA ratio (mole%)	14: 82: 4

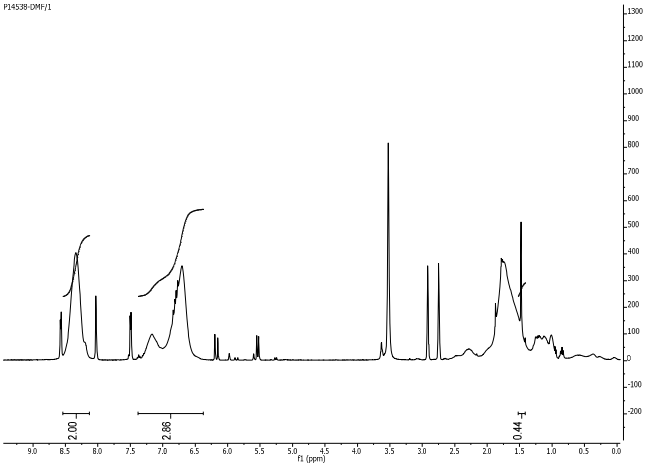
Synthesis Procedure:
The polymer is prepared by RAFT polymerization of styrene and 4-vinylpyridine and tBuMA.

Characterization:
The polymer was analyzed by size exclusion chromatography (SEC) equipped with light scattering detector and refractive detector in DMF at 50 °C to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from ^{1}H-NMR spectroscopy in DMF by comparing the peak area of 4VP protons at 8.33 ppm with the styrene protons at about 6.3-7.4 ppm that deducts the contribution of the 4VP protons, tBuMA moiety at 1.4-1.5 ppm.

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 THF, DMF and in hot methanol.

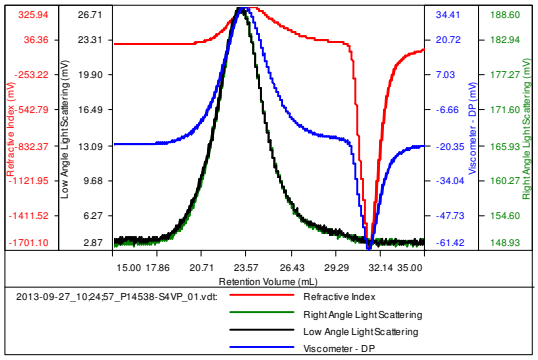
^{1}H-NMR Spectrum of the random copolymer:



SEC of the random copolymer:

SAMPLE ID: P14538-S4VPtBuMA

Conc	1.5186
dn/dc	0.1100
Method	PS80K-AUG2013-0000.vcm
Solvent	DMF w 0.05M LiBr
Column	PSS



Sample	Mn	Mw	Mz	Mp	Mw/Mn	Ret Time
2013-09-27_10;24;57_P14538-S4	87,152	110,623	152,557	102,302	1.269	23.710

DSC thermogram for the polymer