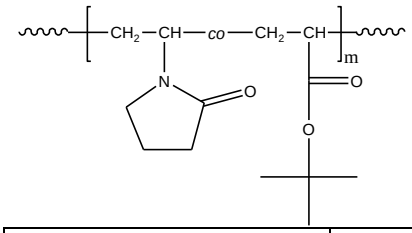
Sample Name: Poly(N-vinylpyrrolidone -co-t-butyl acrylate)

Sample #: P7034-VPtBuAran

Structure:



Mn x 10^3 P(VP-co-tBuA)	PDI	**tBuA** (mol %)
75.6	3.5	53
T_g for the sample	91°C	

Synthesis Procedure:

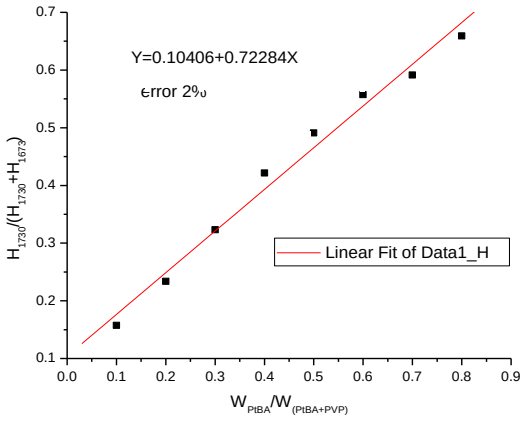
Poly(N-vinylpyrrolidone -co-t-butyl acrylate) is prepared by radical polymerization with N-vinylpyrrolidinone and t-butyl acrylate.

Characterization:

Poly(N-vinylpyrrolidone -co- t-butyl acrylate) was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The random copolymer composition was calculated from FTIR and NMR.

Note: The calculation of the composition bases on the FTIR standard fit line obtained from polymers that have known composition.

FTIR standard line for composition calculation:



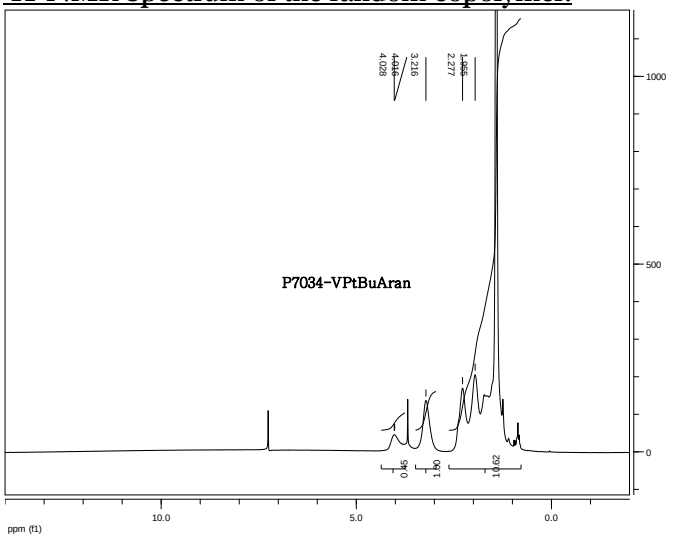
Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 20°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).

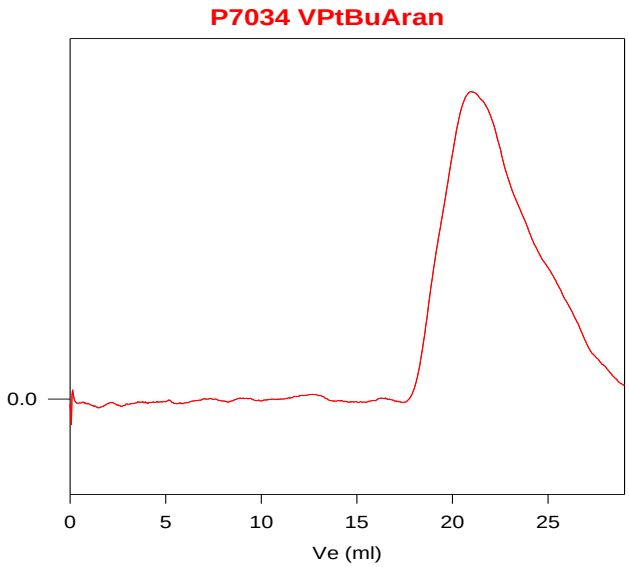
Solubility:

Poly(N-vinylpyrrolidone -co-t-butyl acrylate) is soluble in THF, DMF, toluene. It precipitated from hexane and ether.

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



SEC of the random copolymer:



Size exclusion chromatograph of :
Poly(N-vinylpyrrolidone-co-t-butyl acrylate)

M_n=75600, M_w=269000, PI=3.5 (w.r.t. polystyrene standards)

DSC thermogram for the sample: