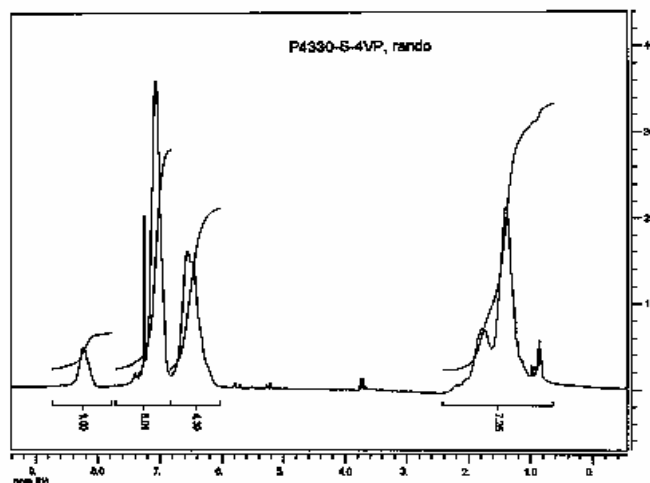
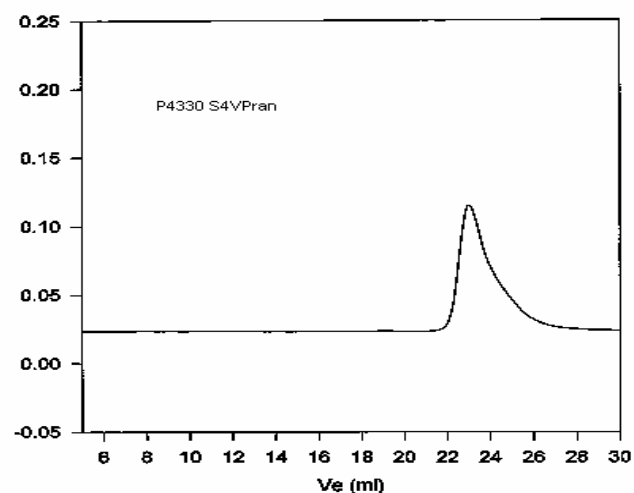


¹H-NMR Spectrum of the random copolymer:



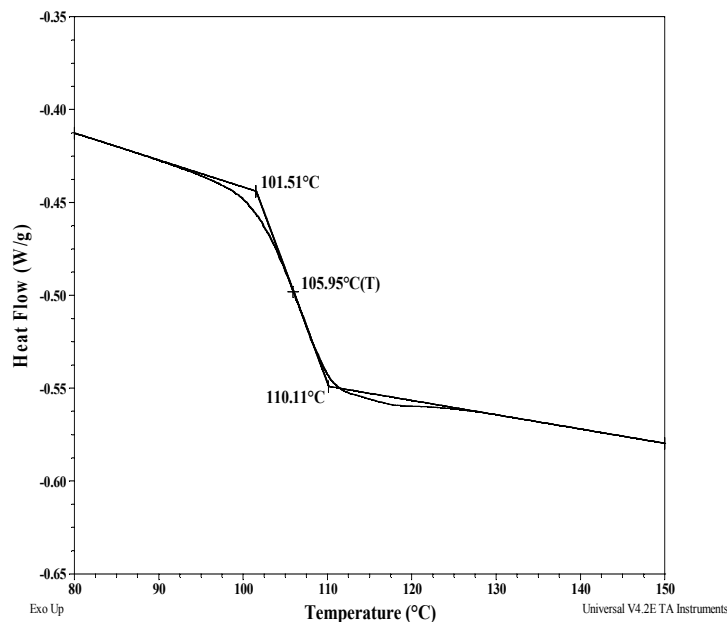
SEC of the random copolymer:



Size exclusion chromatograph of random copolymer poly(S-co-4VP):

$M_n = 25,000$, $M_w = 40,000$, $M_w/M_n = 1.6$
4VP: 22 mole%

Thermogram for the random polymer

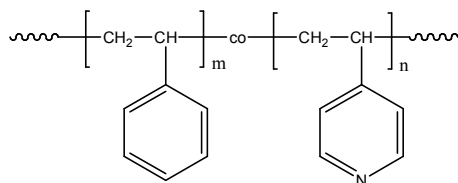


Sample Name:

Random Copolymer Poly(styrene-co-4-vinylpyridine)

Sample #: P4330-S4VPran

Structure:



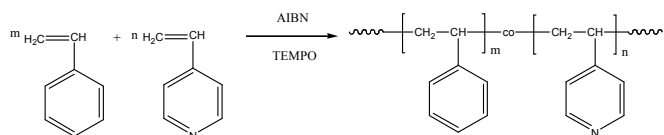
Composition:

P4VP (mol%) : 22

$M_n \times 10^3$ PS-co-P4VP	PDI
25	1.6
T_g for the random polymer	106°C

Synthesis Procedure:

The polymer is prepared by radical polymerization of styrene and 4-vinylpyridine in the presence of TEMPO. The scheme of the reaction is illustrated below:



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 of 4VP protons at 8.28 ppm with the styrene protons at about 6.1-7.2 ppm that deducts the contribution of the 4VP 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 CHCl₃, THF, DMF, toluene and precipitated out from hexane