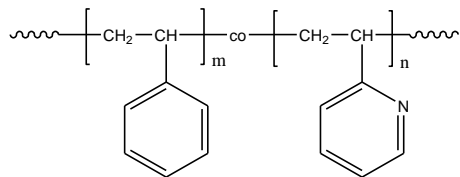


**Sample Name:**

Random Copolymer Poly(styrene-co-2-vinylpyridine)

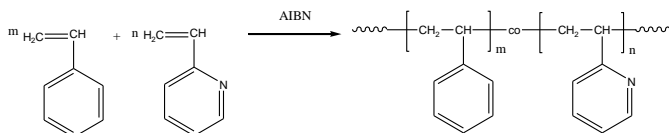
**Sample #: P7620-S2VPran****Structure:****Composition:**

2VP (mol%) : 50%

Mn x 10 <sup>3</sup> PS-co-P2VP	PDI
19.0	1.7
T <sub>g</sub> for the random copolymer	<b>81°C</b>

**Synthesis Procedure:**

The polymer is prepared by radical polymerization of styrene and 2-vinylpyridine in the presence of AIBN. The scheme of the reaction is illustrated below:

**Characterization:**

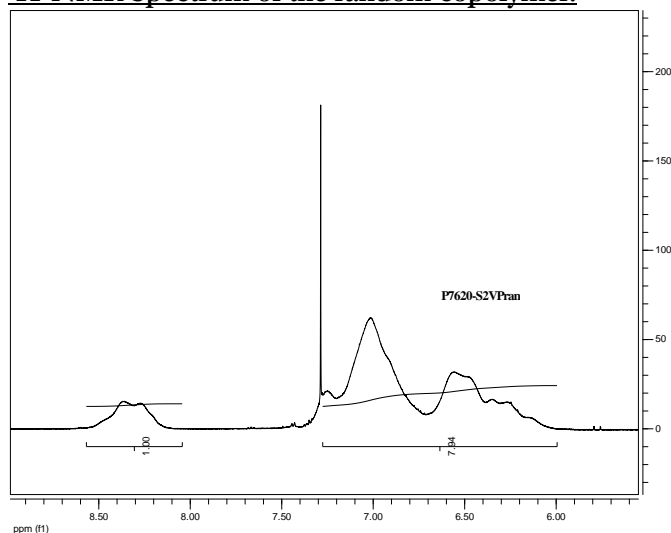
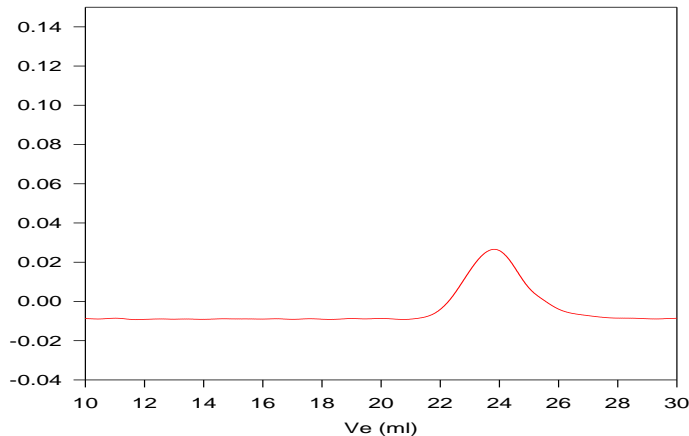
The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of 2VP protons at 8.3 ppm with the styrene protons at about 6.1-7.2 ppm that deducts the contribution of the 2VP 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<sub>g</sub>).

**Solubility:**

The polymer is soluble in CHCl<sub>3</sub>, THF, DMF, toluene and precipitated out from hexane

**<sup>1</sup>H-NMR Spectrum of the random copolymer:****SEC of the random copolymer:****P7620-S2VPran**

Size exclusion chromatograph of the polymer:

M<sub>n</sub>=19000, M<sub>w</sub>=32300, M<sub>w</sub>/M<sub>n</sub>=1.7

2VP= 50.0 mole% from NMR

**DSC thermogram for the sample:**