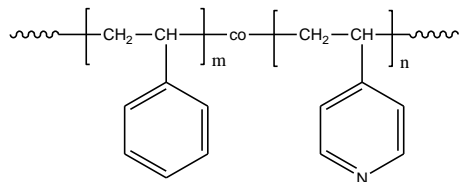


Sample Name:

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

Sample #: P7307-S4VPran

**Structure:**



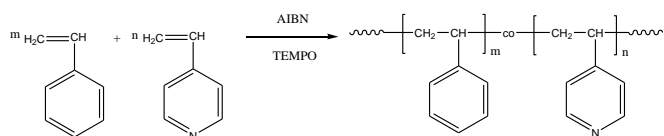
**Composition:**

P4VP (mol%) : 54

Mn x 10 <sup>3</sup> PS-co-P4VP	PDI
95.9	1.50
T <sub>g</sub> for random polymer	130°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 <sup>1</sup>H-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.

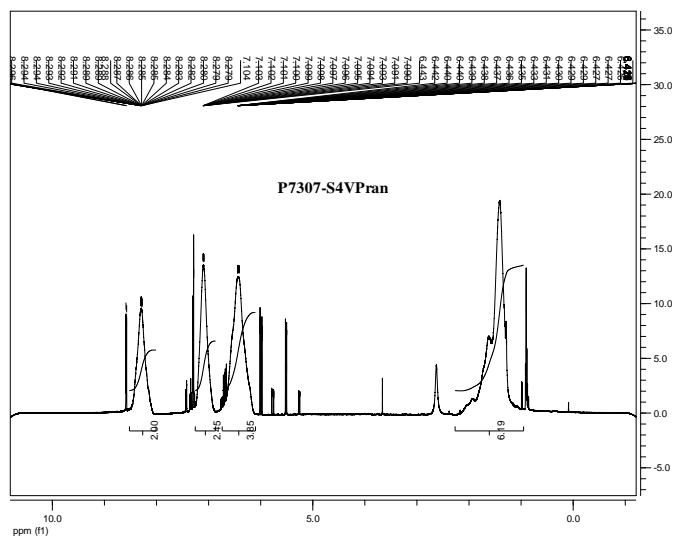
**Thermal analysis:**

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<sub>g</sub>).

**Solubility:**

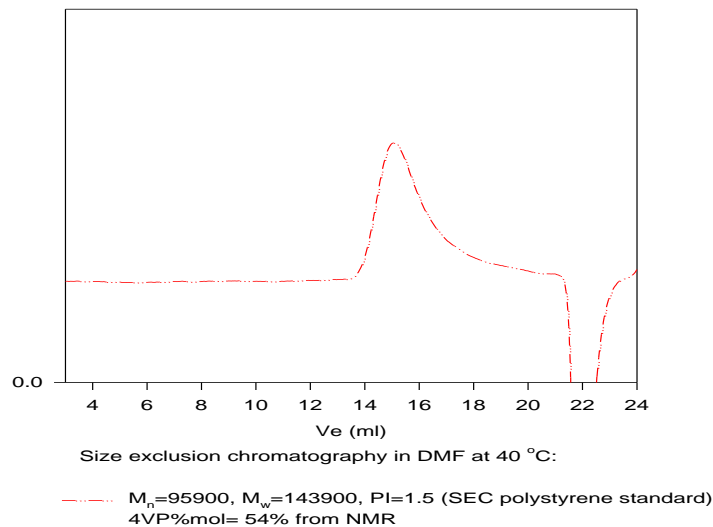
The polymer is soluble in CHCl<sub>3</sub>, THF, DMF, toluene and precipitated out from hexane

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



**SEC of the random copolymer:**

**P7307-S4VPran**



**DSC thermogram for the sample:**

