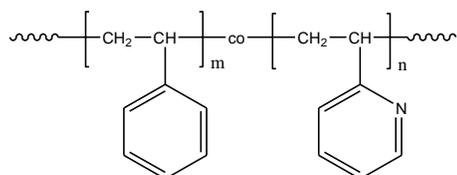


**Sample Name:**

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

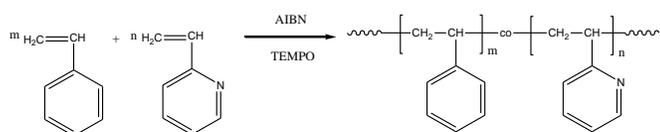
**Sample #: P7615-S2VPran****Structure:****Composition:**

2VP (mol%): 82.0

$M_n \times 10^3$ PS-co-P2VP	PDI
21.5	1.6
$T_g$ for the random copolymer	<b>93°C</b>

**Synthesis Procedure:**

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

**Characterization:**

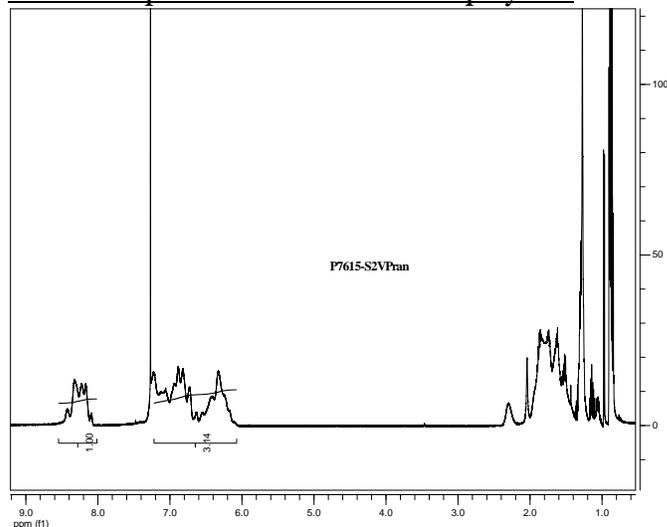
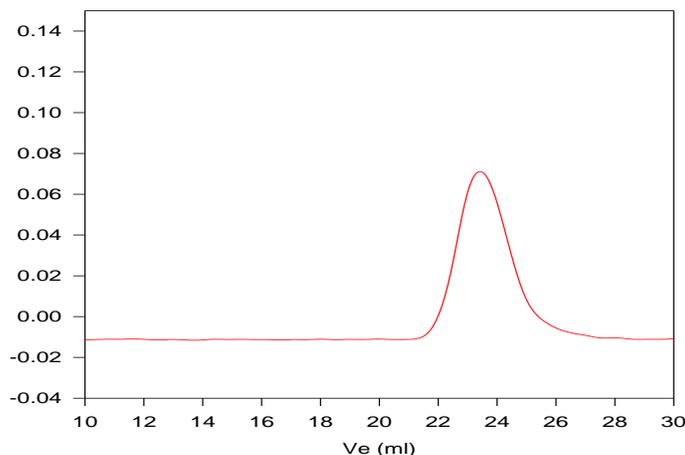
The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from  $^1\text{H-NMR}$  spectroscopy by comparing the peak area of 2VP protons at 8.3 ppm with the styrene protons at about 6.1-7.2 ppm 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 ( $T_g$ ).

**Solubility:**

The polymer is soluble in  $\text{CHCl}_3$ , THF, DMF, toluene and precipitated out from hexane

 **$^1\text{H-NMR}$  Spectrum of the random copolymer:****SEC of the random copolymer:****P7615-S2VPran**

Size exclusion chromatograph of the polymer:

$M_n=21500$ ,  $M_w=34500$ ,  $M_w/M_n=1.6$   
2VP= 82.0 mole% from NMR

**DSC thermogram for the sample:**