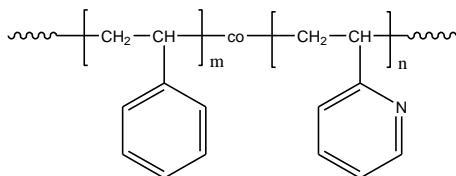


**Sample Name:**

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

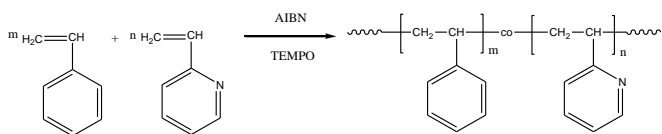
**Sample #: P7610-S2VPran****Structure:****Composition:**

P2VP (mol%) : 22.0

$M_n \times 10^3$ PS-co-P2VP	PDI
28.0	1.38
$T_g$ for the random copolymer	<b>88°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:**

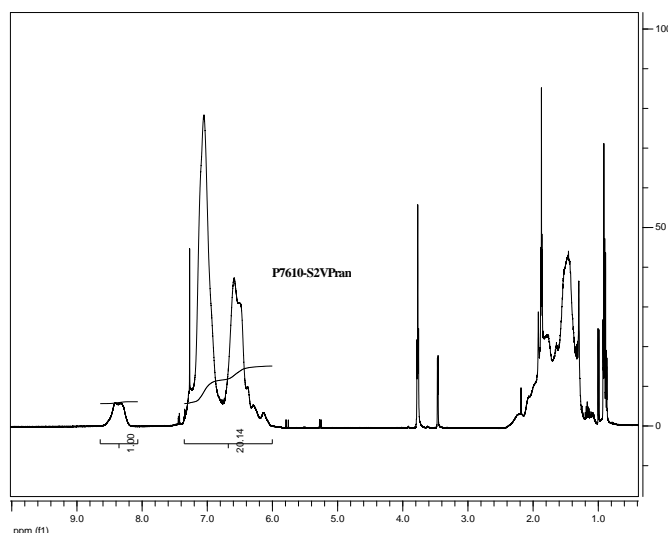
The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from  $^1\text{H-NMR}$  spectroscopy by comparing the peak area of 2VP protons at 8.3 ppm with the styrene protons at about 6.1-7.2 ppm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

**Thermal analysis:**

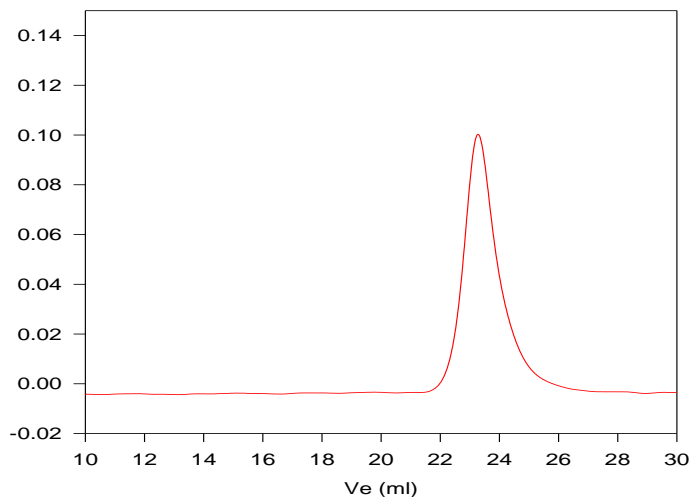
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of  $10^\circ\text{C}/\text{min}$ . The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature ( $T_g$ ).

**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:**

**P7610-S2VPran**



Size exclusion chromatograph of the polymer:

$M_n=28000$ ,  $M_w=38500$ ,  $M_w/M_n=1.38$

2VP= 22.0 from NMR

**DSC thermogram for the sample:**