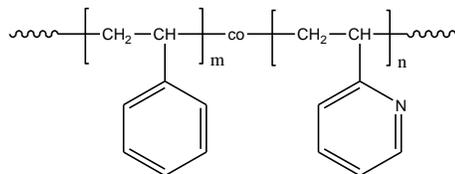


### Sample Name:

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

Sample #: P7614-S2VPran

### Structure:



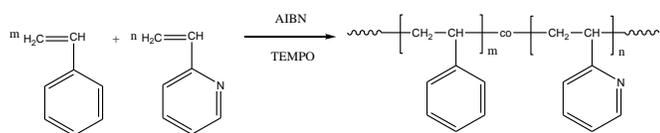
### Composition:

2VP (mol%): 54.0

$M_n \times 10^3$ PS-co-P2VP	PDI
24.5	1.5
$T_g$ for the random copolymer	90°C

### 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 <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.

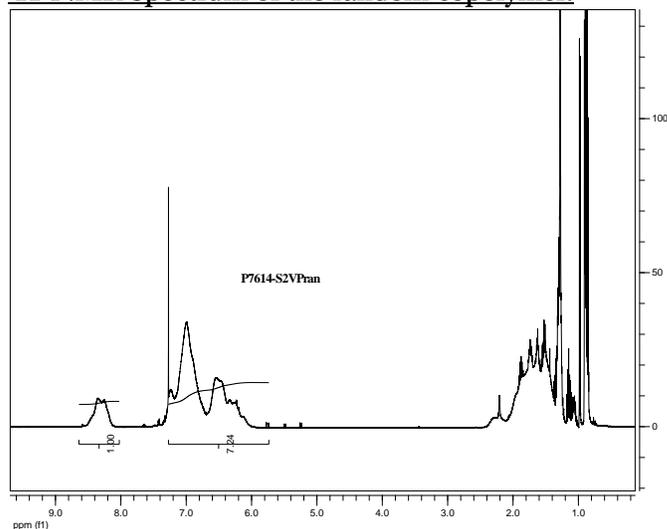
### Thermal analysis:

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 ( $T_g$ ).

### Solubility:

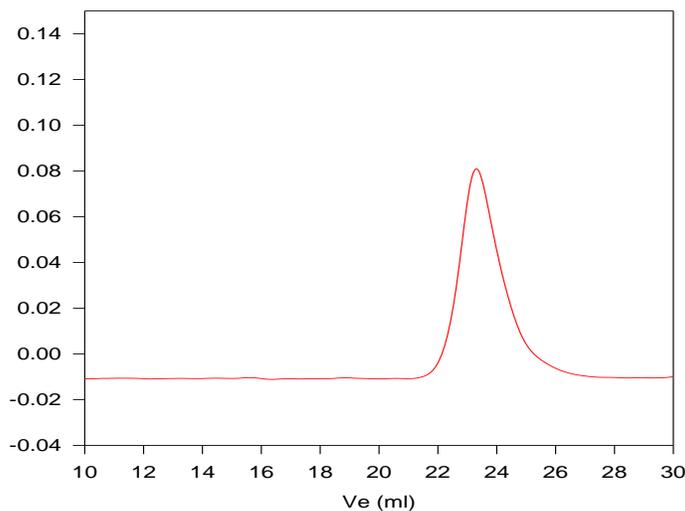
The polymer is soluble in CHCl<sub>3</sub>, THF, DMF, toluene and precipitated out from hexane

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



### SEC of the random copolymer:

P7614-S2VPran



Size exclusion chromatograph of the polymer:

$M_n=24500$ ,  $M_w=36800$ ,  $M_w/M_n=1.5$   
2VP= 54.0 mole% from NMR

### DSC thermogram for the sample:

