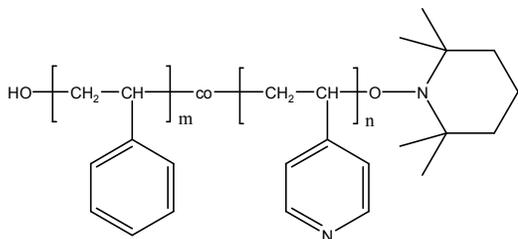


Sample Name:

Random Copolymer Poly(styrene-co-4-vinylpyridine) terminated with hydroxy group

Sample #: **P14259-2-S4VPran-OHT**

Structure:

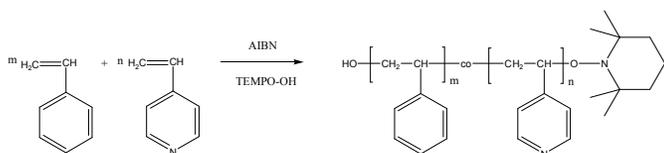


Composition:

| | |
|------------------------------------|-------|
| Mn x 10 ³ PS-co-P4VP | 16.3 |
| PDI | 1.2 |
| m : n | 1 : 9 |
| T _g for random polymer | |

Synthesis Procedure:

The polymer is prepared by controlled radical polymerization of styrene and 4-vinylpyridine in the presence of OH end capped 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 ¹H-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.

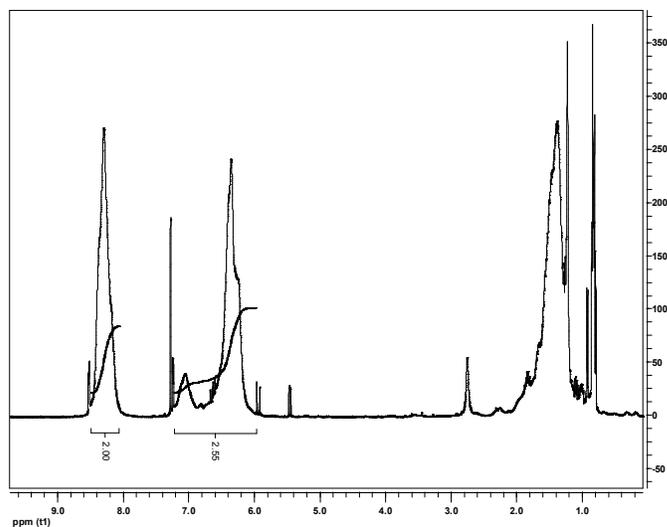
Thermal analysis:

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_g).

Solubility:

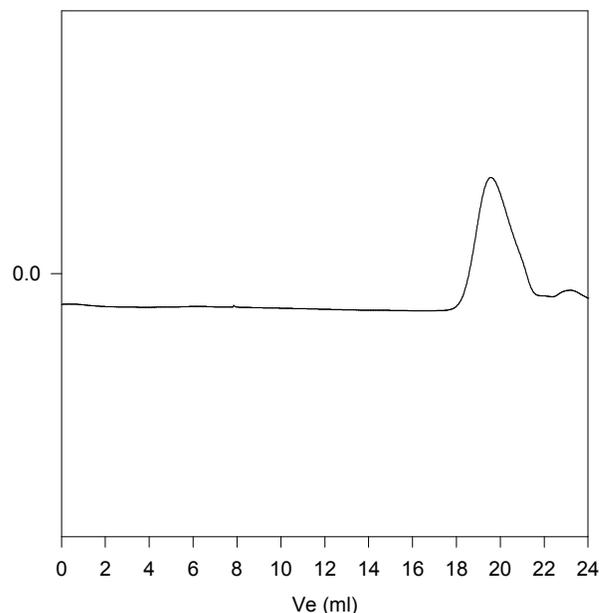
The polymer is soluble in CHCl₃, THF, DMF, toluene and precipitated out from hexane

¹H-NMR Spectrum of the random copolymer:



SEC of the random copolymer:

P14259-2-S4VPran-OH



Size exclusion chromatography in DMF at 40 °C:

— M_n=16300, M_w=19600, PDI=1.2 (SEC polystyrene standard)