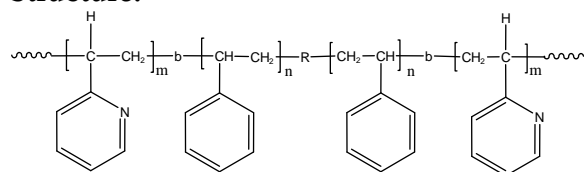


Sample Name: Poly(2-vinyl pyridine-b-styrene-b-2-vinyl pyridine)

Sample #: P10872P-2VPS2VP (electronic Grade)

Structure:



R: dimer or tetramer of alpha methyl styrene

Composition:

Mn x 10 ³ 2VP-b-PS-b-2VP	PDI
12.0-b-23.0-b-12.0	1.25
T _g for PS block: 102°C	

Synthesis Procedure:

Poly(2-vinyl pyridine-b-styrene-b-2-vinyl pyridine) is prepared by living anionic polymerization using a bifunctional initiator with sequence addition of styrene followed by 2-vinylpyridine (2VP).

Characterization:

The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. THF was an eluent.

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:

Poly(2-vinyl pyridine-styrene-b-2-vinyl pyridine) is soluble in DMF, THF, CHCl₃. The polymer readily precipitates from hexanes and diethyl ether.

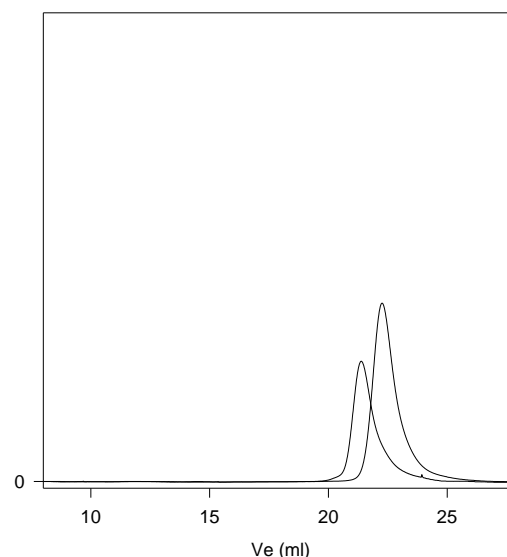
Purification of the obtained polymer was carried out rigorously as follows to ensure the removal of the catalyst side product:

1. Dissolved the polymer in CHCl₃ and washed with de-ionized distilled water to remove the any soluble organic catalyst side product.
2. Polymer extracted from water with chloroform.
3. Polymer solution in CHCl₃ was dried over anhydrous sodium sulfate.

4. Solution filtered and then passed through a column packed with basic Al₂O₃.
5. Solution concentrated on rota-evaporator
6. Solution precipitated in cold hexane, redissolved in benzene and freeze dried.
7. Finally, dried under vacuum for 48h at 50°C.

SEC of the polymer:

P10872-2VPS2VP



Size exclusion chromatography of:
Poly(2 vinyl pyridine-b-Styrene-b-2 vinylpyridine)

— Poly(Styrene), M_n≈23,000, PI=1.20

— Triblock Copolymer P 2VP(12,000)-b-PS(23,000)-b-P2VP(12,000) PI=1.25
Chemical composition from ¹H NMR and by titration (average value)

¹H NMR:

