

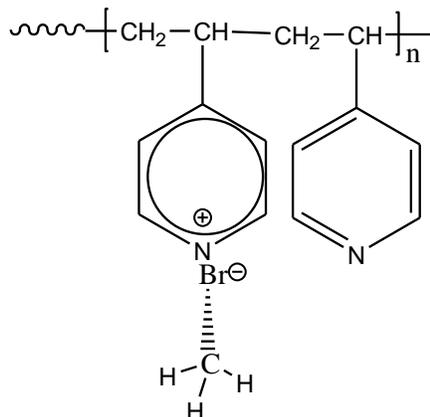
Sample Name:

**Random Copolymer Poly( 4-Vinyl Pyridine-co-4-Vinyl -N-methylpyridinium bromide)**

Sample #: P18444-4VPQ.CH3Br

Degree of Quaternization : 75%

Structure:



Composition:

Mn × 10 <sup>3</sup>	PDI
35.0	1.4
After Quaternization	
57.0	1.4

Synthesis Procedure:

75% quaternization of Poly 4VP was carried out in DMF/THF mixture at 0 °C by adding CH<sub>3</sub>Br (B.P 4 °C) quantitatively to get 50% degree of quaternization. Polymer was washed with cold THF and dried under vacuum at 50 °C.

From the yield of the polymer also reveals 50% quaternization and also clear from its HNMR carried out in methanol:

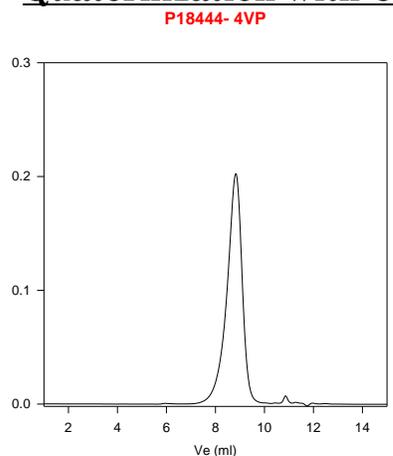
Characterization:

The molecular weight and polydispersity index (PDI) of poly(4-vinyl pyridium) are obtained by size exclusion chromatography. The quaternization is confirmed by FTIR with the disappearance of the -N= absorbance peak at 1412 cm<sup>-1</sup> and the degree of quaternization is about 75%.

Solubility:

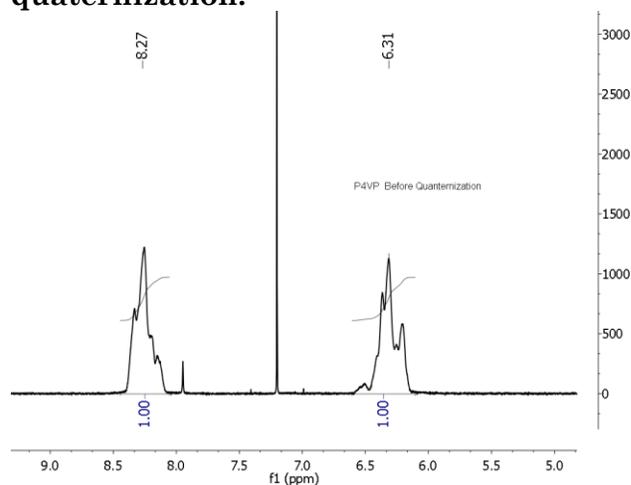
Polymer is soluble in methanol, ethanol and precipitate out from hexane, ether.

**SEC of Homopolymer: used for Quaternization with CH<sub>3</sub>Br**



Size exclusion chromatography of poly(4-vinylpyridine) in DMF (Precursor for the P18444-4VPQCH<sub>3</sub>Br)  
M<sub>n</sub>=35000, M<sub>w</sub>=49,000, PI=1.4 (Precursor)

HNMR of the Polymer before quaternization:



HNMR of the Polymer in methanol after quaternization:

