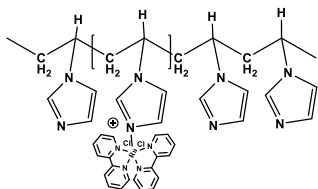


Sample Name: Poly (N-vinyl imidazole-
partially quaternized with bis (2,2-bipyridine)
di-chloro Ruthenium complex

Sample #: P44493A-VIMDZ-RuQ

Structure:



Composition:

Mn x 10 ³ of VIMDZ	PDI
8.3	1.5
(Degree of quaternization is ca. 25%)	

Synthesis Procedure:

Poly (N-vinyl imidazole) is synthesized by free-radical polymerization in toluene using AIBN as the initiator. The partial quaternization was performed in DMF with ruthenium salt.

Characterization:

The molecular weight and polydispersity index (PDI) of Poly (N-vinyl imidazole) are obtained by size exclusion chromatography using water with 0.1% TFA and 0.2M NaCl as eluent. The degree of quaternization is calculated based on the results of element analysis. NMR spectrum was recorded on Varian 500 in deuterated DMFL.

Solubility:

Polymer is soluble in methanol, ethanol, DMF.

Purification:

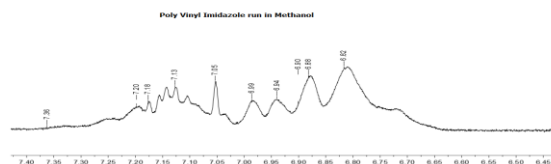
Purification of the polymer after quaternization with bis (2,2-bipyridine) ruthenium dichloride complex:

Polymer recovers from ethanol and dried and Soxhlet for 3 days with Benzene. The traces amount of unreacted Ru 2, 2 bipyridine dichloride separated out from the polymer. Salt being soluble in benzene while the complex polymer is insoluble in benzene.

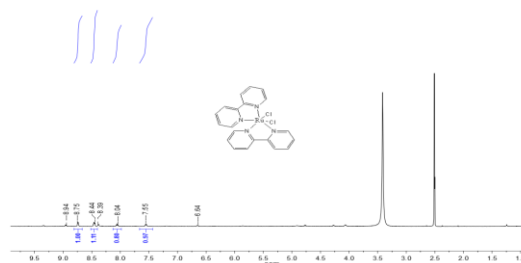
Degree of quaternization: From the yield of the polymer after reaction with osmium salt was calculated and found the % of quaternization was 25%.

HNMR of the polymer after quaternization also illustrate about 25% degree of quaternization with Ru salt.

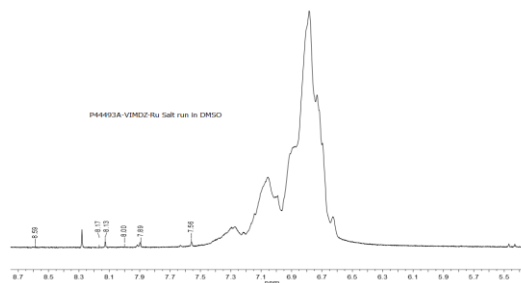
H NMR of poly Vinyl Imidazole in methanol



**Cis(bis(2,2-bipyridine N,N-) dichloro Ru salt
Sample:**



**PolyVIMDZ quaternized with Osmium salt:
Run in DMSO**



SEC of Homopolymer (before quaternization):

