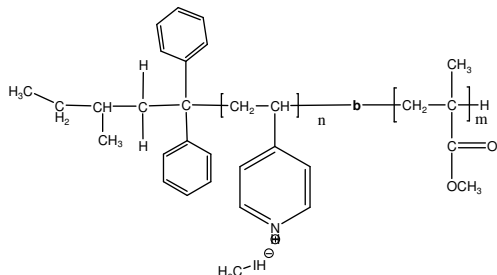


Sample Name:

Poly(N-methyl 4-vinyl pyridinium iodide-b-methyl methacrylate)

Sample #: **P2249-4VPQMA**

Structure:



Composition:

Mn x 10 ³ 4VP-b-MMA	Mw/Mn (PDI)
3.8-b-148.9	1.12

Synthesis Procedure:

The polymer was synthesized by anionic process and quaternization in DMF with CH₃I at RT.

Characterization:

The polymer was characterized by SEC, ¹H NMR and FTIR.

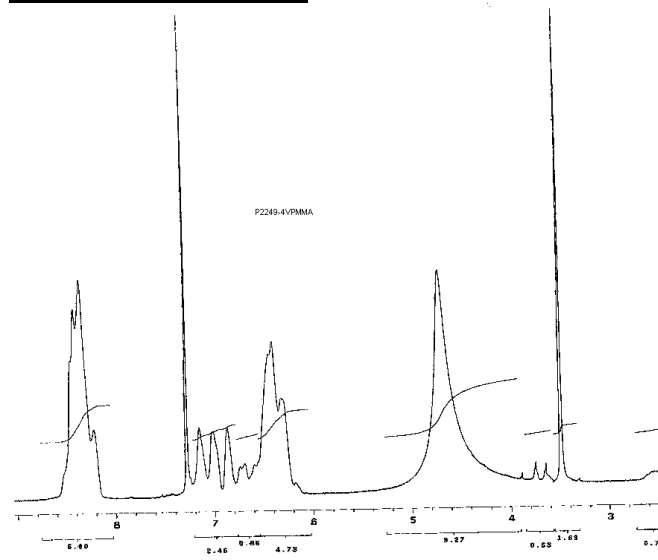
Solubility:

Poly(4-vinyl pyridine-b-methyl methacrylate) is soluble in THF, DMF and also in water depending on the compositions of quaternized fraction.

Reference:

S. K. Varshney, X. F. Zhong and A. Eisenberg, Anionic homopolymerization and block copolymerization of 4-vinylpyridine and its investigation by high-temperature size-exclusion chromatography in N-Methyl-2-Pyrrolidinone. CA 118, 12, 102658, *Macromolecules*, **1993**, 26, 701-706.

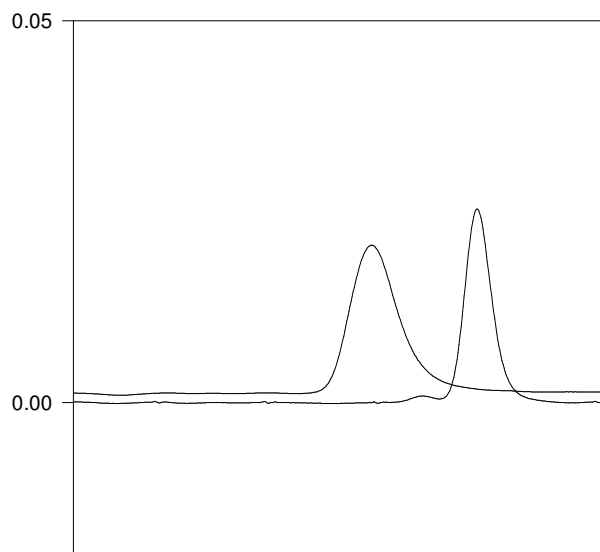
¹H-NMR Spectrum of the 4VP polymer before adding MMA monomer:



¹H NMR spectrum of the Diblock copolymer: Due to small % of 4VP fraction that could not be detected from HNMR;

(Composition were calculated from GPC and FTIR)

P2249-4VPMMA-precursor for the P2249-4VPQMA



— Poly(4-vinylpyridine), M_n=1600, M_w=1900, PI=1.18
— Block Copolymer P4VP(1600)-b-PMMA(148,900), PI=1.12
After quaternization with CH₃I:
P4VP.CH₃I(3800)-b-PMMA(148,900); PI 1.12

Thermal analysis for the sample P2249-4VPMMA

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).

Thermal analysis results at a glance:

Sample	T_g (°C)
4VP ($M_n=15k$)	135
MMA ($M_n=450k$)	118
P-2249	132

Thermogram for the sample:

