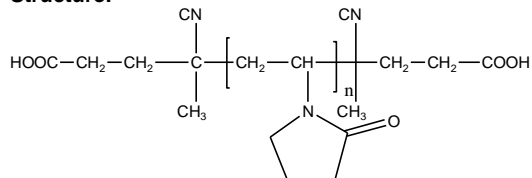


Sample Name:
 α,ω -dicarboxy terminated
 poly(N-vinylpyrrolidone)

Sample #: P7110-4C-NVP2COOH

Structure:

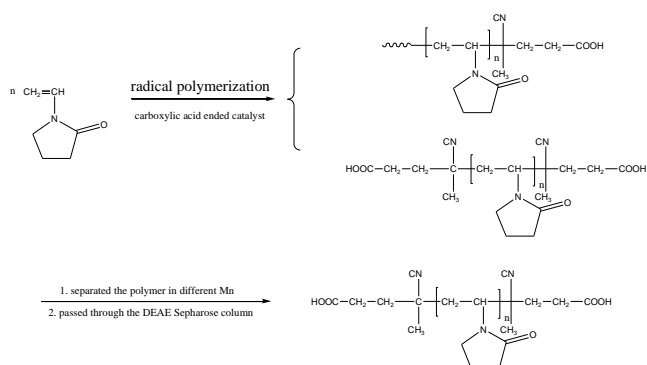


Composition:

Mn x 10 ³	PDI
5.3	1.5

Synthesis Procedure:

α,ω -dicarboxy terminated poly(N-vinylpyrrolidone) was prepared by radical polymerization of N-vinylpyrrolidone using 4,4'-azobis (4-cyanovaleric acid) as a catalyst. The obtained polymer was fractionated and from the each fraction the mono carboxylic acid fraction was separated from its α,ω dicarboxylic acid by passing the polymer solution in ethanol through a column packed with DEAE Sepharose resin. The polymer is obtained by precipitation from cold diethyl ether. The scheme of the reaction is illustrated below:



Characterization:

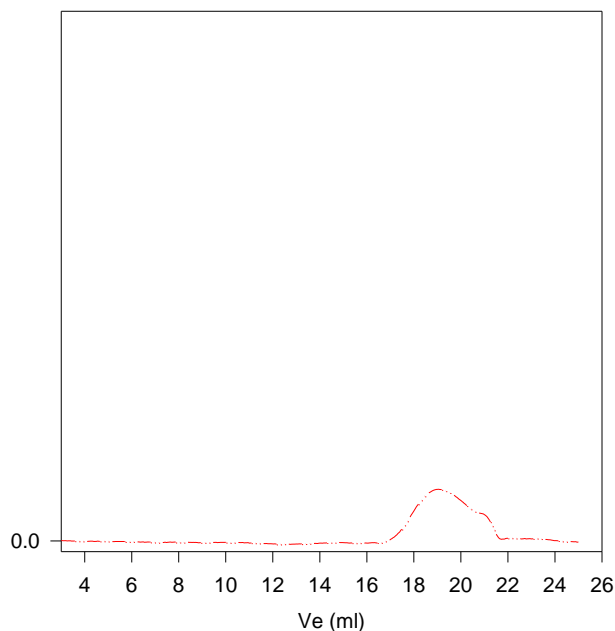
The molecular weight of the polymer was determined by acid base titration and polydispersity was determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector in DMF containing 0.01M LiBr salt.

Solubility:

Polymer is soluble in chloroform, THF, DMF, ethanol and water, and precipitate out from hexanes and ether.

SEC of Sample:

P7110-4C NVP2COOH



Size exclusion chromatography in DMF at 40 °C:
 Eluent containing 0.01 M LiBr

— Dicarboxylic acid ended poly(N-vinylpyrrolidone),
 $M_n=5300$, $M_w=8000$, $PI=1.5$. (M_n obtained by titration)