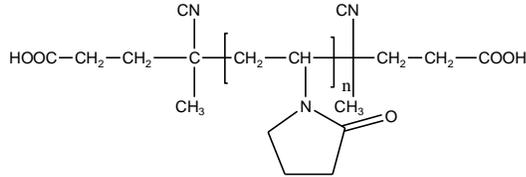


**Sample Name:**  
 **$\alpha,\omega$ -dicarboxy terminated**  
**poly(N-vinylpyrrolidone)**

**Sample #:** P7110-4C-NVP2COOH

**Structure:**

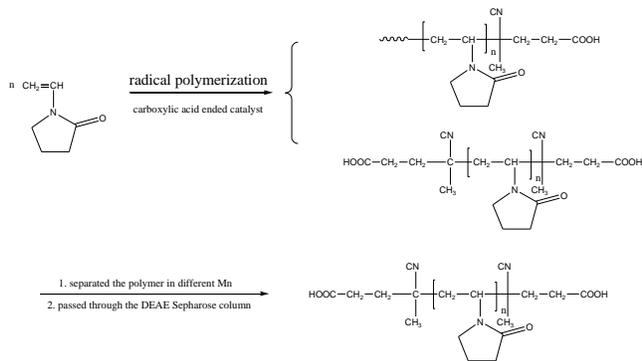


**Composition:**

Mn x 10 <sup>3</sup>	PDI
5.3	1.5

**Synthesis Procedure:**

$\alpha,\omega$ -dicarboxy terminated poly(N-vinylpyrrolidone) was prepared by radical polymerization of N-vinylpyrrolidinone using 4,4'-azobis (4-cyanovaleic acid) as a catalyst. The obtained polymer was fractionated and from the each fraction the mono carboxylic acid fraction was separated from its  $\alpha,\omega$  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:**

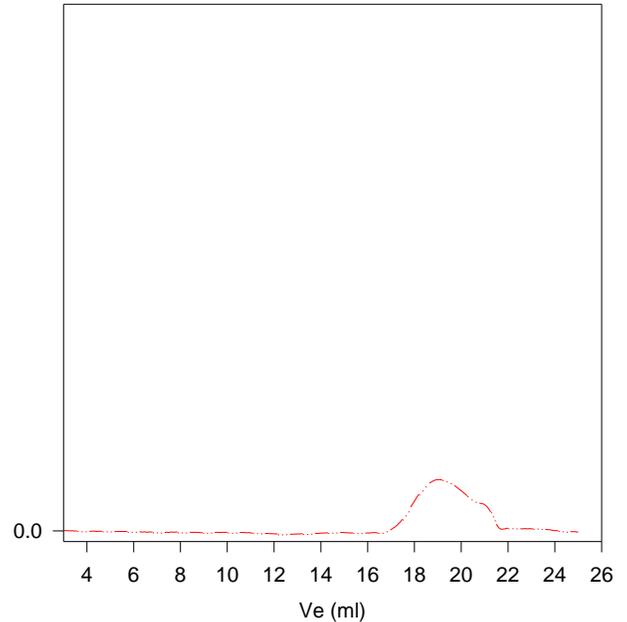
The molecular weight of the polymer was determined by acid base titration and polydispersity was determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector in DMF containing 0.01M LiBr salt.

**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)