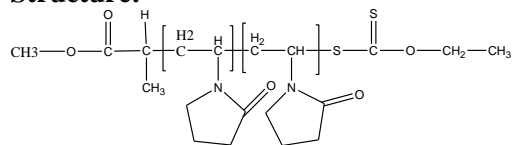


Sample Name: Poly (N-Vinyl Pyrrolidinone)

Sample #: P7564-NVP (dialysed)

Structure:



Composition:

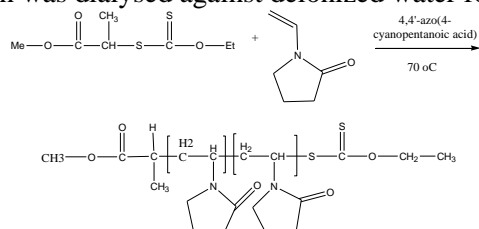
Mn × 10 ³	Mw/Mn (PDI)
1.0	1.2
T _g (°C)	-37

Synthesis Procedure:

Polymer is synthesized by RAFT polymerization of N-vinyl 2-pyrrolidinone using 4,4'-azo(4-cyanopentanoic acid) as initiator and xanthate as chain transfer agent.. Polymerization was carried out for 24h reaction time.

Purification:

Polymer was purified by column packed with silica and the eluent was de-ionized water. The obtained polymer solution was dialysed against deionized water for 24h.



Characterization:

Polymer analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI) using water containing 0.1M NaNO₃ and 0.01M NaH₂PO₄ as eluent. The Mn was then also calculated from ¹H-NMR spectroscopy by comparing the peak area of the terminal end group protons at about 3.6 ppm and 1.2 ppm and of pyrrolidinone units at 3.2 ppm to 2.0 ppm. Polymer molecular weight distribution is determined by SEC.

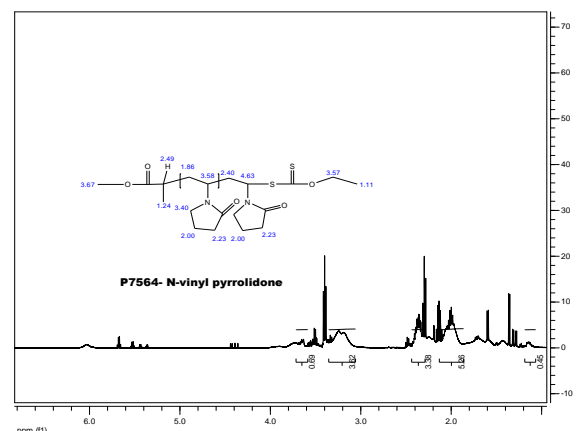
Thermal Analysis:

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).

Solubility:

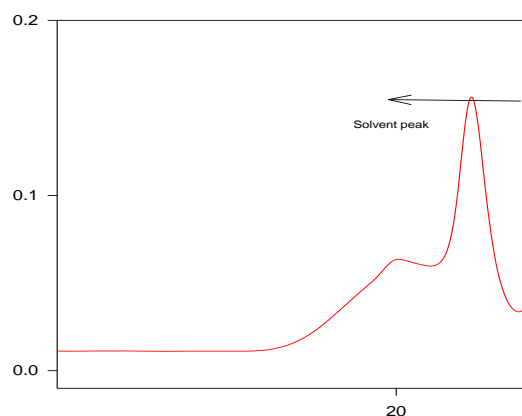
Polymer is soluble in water.

¹H-NMR Spectrum of polymer bearing terminal Xanthate group:



SEC of Sample of the polymer:

P7564-NVP



Size Exclusion Chromatography of Poly(N-vinylpyrrolidone)
M_n=1000, M_w=1200, PI=1.2

DSC thermogram for the polymer:

