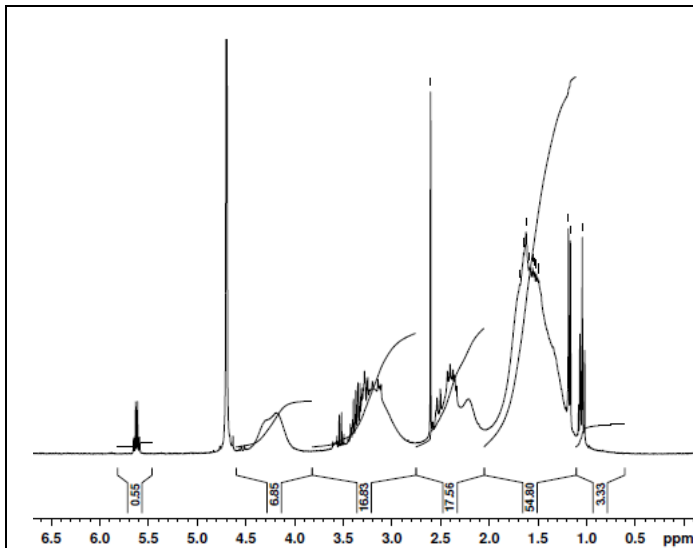


No. AO31 Certificate of Analysis

Product Name: Poly(n-vinylcaprolactam)

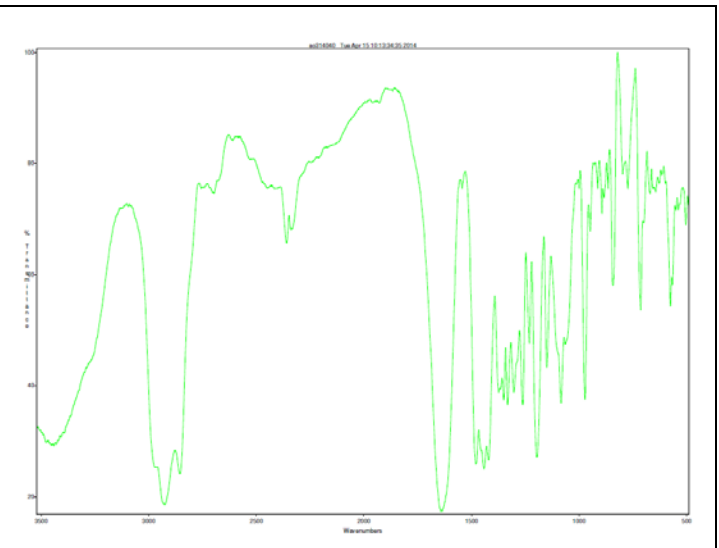
(Lot#: 40408SMS)

H-NMR



H-NMR Spectrum of PNVCL copolymer in D2O
(Varian Inova 500 MHz instrument)

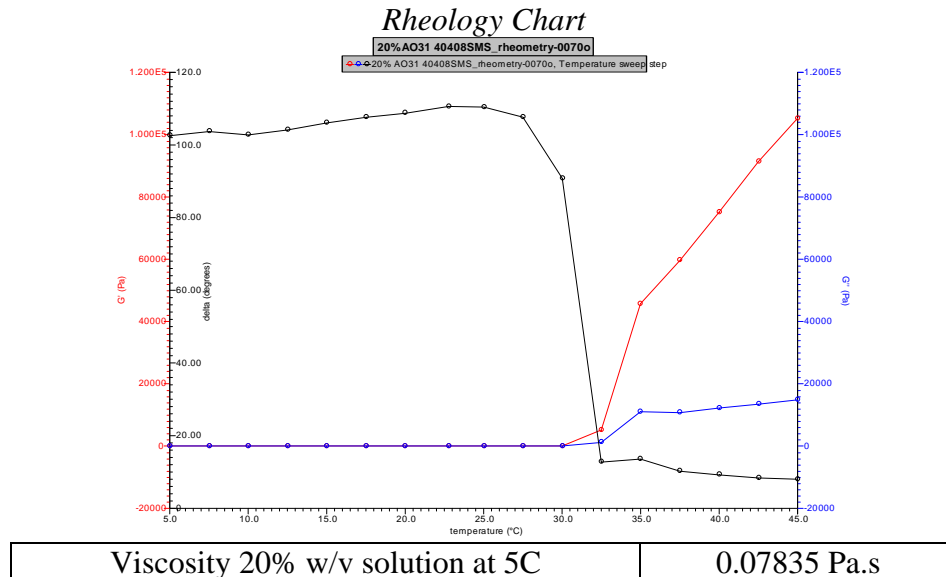
FTIR



FTIR Analysis: Collected from compressed KBR pellet placed
in Satellite FTIR (Thermo-Mattson) and analyzed
in transmission mode.

- Rheology analysis of PNVCL copolymers**

Rheology performed on AR550 (TA instruments) with 60mm 2degree cone on 20% w/v polymer in distilled water dissolved overnight with shaking at 4C. Viscosity of solution at 0.1 (sec-1) and 5C was measured (1minute peak hold, 5 second test intervals). Rheology performed by oscillating at constant 6.283 rad/s, 0.1% strain, in increments of 2.5C ranging from 5-45C with 3 minutes of temperature equilibration at each point.



- Structure of PNVCL copolymers**

