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APPENDIX A

Viscosities of the Partially Hydrolyzed Polyacrylamide(HPAM)

Viscosities of the partially hydrolyzed polyacrylamide before precipitation for each degree of hydrolysis(%) are shown in Table A-1.

Table A-1 Viscosities of Partially Hydrolyzed polyacrylamide before precipitation.

Degree of Hydrolysis (%)	*** Viscosity (mPa.s)**
63	1939
71	1054
72	1045
76	998
77	990
80	979
84	847

* Viscosities were determined by BROOKFIELD Viscometer Model DV-III with a No. LV 2 spindle at a shear rate of 28 rpm at 25 °C.

APPENDIX B

Viscosities of HPAM-1-vinyl-2-pyrrolidone Mixtures and Copolymer after irradiation.

Viscosities of the partially hydrolyzed polyacrylamide(HPAM)-1-vinyl-2-pyrrolidone mixtures and copolymer after irradiation for each degree of hydrolysis are shown in Table A-2.

Table A-2 Viscosities of HPAM-1-vinyl-2-pyrrolidone mixutures and copolymer after irradiation.

Degree of Hydrolysis (%)	Viscosity of HPAM-1-Vinyl-2-Pyrrolidone Mixture (mPa.s)	Viscosity of Copolymer after Irradiation (mPa.s)
63	1526	2140
71	1410	2050
72	1398	2042
76	1340	2010
77	1328	2004
80	906	1940
84	888	1916

* Viscosities were determined by BROOKFIELD Viscometer Model DV-III with a No. LV 2 spindle at a shear rate of 28 rpm at 25 °C.

APPENDIX C

Viscosities of 71% parally hydrolyzed poly(acrylamide-co-1-vinyl-2-pyrrolidone) in NaCl solutions at the concentrations of 0.1, 0.5, 1.0 and 2.0% NaCl w/v are shown in Table A-3.

Table A-3 Viscosities of 71% Partially Hydrolyzed Poly(Acrylamide-co-1-Vinyl-2-Pyrrolidone) in NaCl Solutions.

Concentration of NaCl (%w/v)	***Viscosity (mPa.s)**
0	790
0.1	740
0.5	670
1.0	546
2.0	450

*Viscosities were determined by BROOKFIELD Viscometer Model DV-III with a No. LV 2 spindle at a shear rate of 28 rpm at 25 °C.

APPENDIX D

Viscosities of 71% partially hydrolyzed poly(acrylamide-co-1-vinyl-2-pyrrolidone) in $MgCl_2$ solutions at the concentrations of 0.1, 0.5, 1.0 and 2.0% $MgCl_2$ w/v are shown in Table A-4.

Table A-4 Viscosities of 71% Partially Hydrolyzed Poly(Acrylamide-co-1-Vinyl-2-Pyrolidone) in $MgCl_2$ Solutions.

Concentration of $MgCl_2$ (%w/v)	***Viscosity (mPa.s)**
0	790
0.1	650
0.5	598
1.0	495
2.0	398

*Viscosities were determined by BROOKFIELD Viscometer Model DV-III with a No. LV 2 spindle at a shear rate of 28 rpm at 25 °C.

APPENDIX E

Principle of the Micro Determination of Nitrogen

The microdetermination of nitrogen in organic compounds has led to more investigation and publications than even the carbon-hydrogen test. Like other organic analyses it involves conversion of the nitrogen in the sample to a measurable form, and a means for measuring this nitrogen from quantitatively.

There are two basic methods, for the determination of nitrogen which are used in one form or another almost exclusively. They are

1. Kjeldahl
2. Dumas

Both methods have limitations, and well-equipped laboratury will be capable of running both tests. The simplest method is determined by "a semi-micro Kjeldahl procedure". The method is based on the fact that digestion with sulfuric acid and various catalysts destroys the organic material and the nitrogen is converted to ammonium acid sulfate. When the reaction mixture is made alkaline, ammonia is liberated and removed by steam distillation, collected, and titrated. The method involves the oxidation of 0.1 g of partially hydrolyzed polyacrylamide(HPAM) by heating with a catalyst mixture and concentrated H_2SO_4. The HPAM is destroyed and the nitrogen compounds are converted to ammonium hydrogen sulphate, $(NH_4)HSO_4$. After the oxidation, the mixture is made alkaline with 67% of NaOH. The NH_3 gas which is steam distilled and received into a known amount of boric acid, H_3BO_3. The ammonium solution is titrated with standardised 0.01 N H_2SO_4 to end point of light violet in the presence of screened methyl red indicator.

VITA

Miss Phiriyatorn Suwanmala was born on May 18, 1966 in Yala Province. She received her B. Sc. in Chemistry from Faculty of Science, Prince of Songkla University in 1989. She began her masters degree study in polymer science, Multidisciplinary Program of Petrochemistry and Polymer, Chulalongkorn University in May 1993.