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APPENDICES

APPENDIX A

FTIR spectra

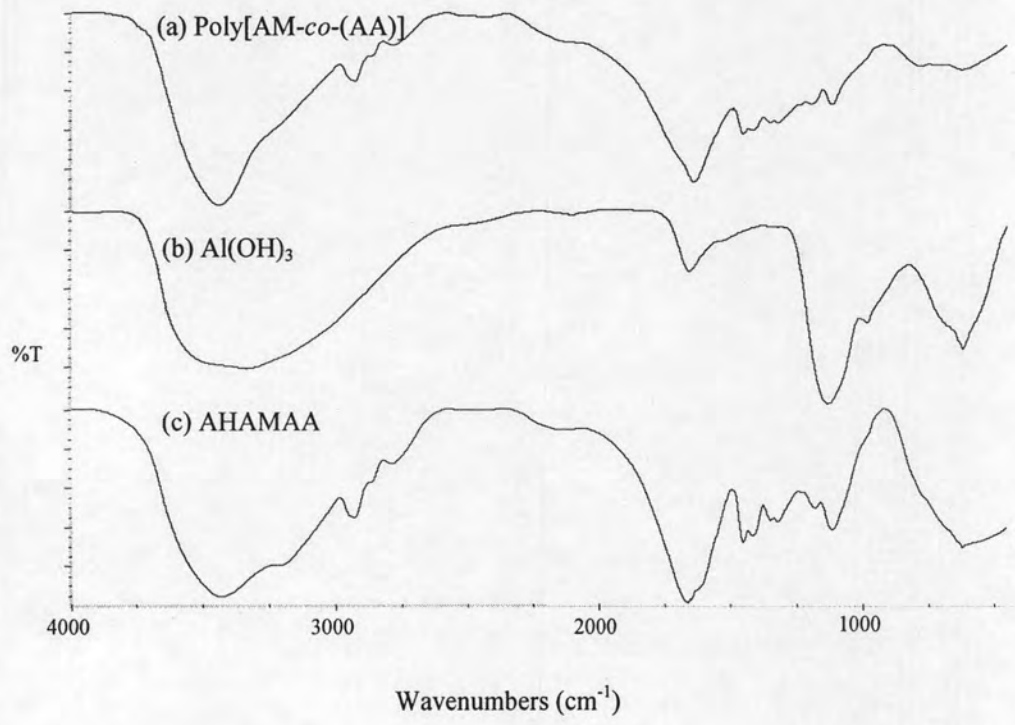

Figure A-1 FTIR spectrum of (a) poly[AM-*co*-(AA)], (b) $Al(OH)_3$ and (c) AHAMAA

The FTIR spectrum of poly[AM-*co*-(AA)] has the peaks of the O-H stretching at 3440 cm^{-1}, the C-H and CH_2 stretching at 2927 and 2778 cm^{-1} and the wave number of 1447 cm^{-1} for the C-H and CH_2 asymmetric bending. Moreover, the peak at 3291, 1638, and 1350 cm^{-1} indicated the N-H stretching, C=O stretching, and C-N stretching of amide groups, respectively.

For $Al(OH)_3$, many interesting peaks were found. The major absorption peaks are at 3352 cm^{-1} (O-H stretching), 1653, 1129 cm^{-1} (S=O stretching of sulphate group), 981 (HO-Al) and 619 cm^{-1} (O-Al).

In the case of AHAMAA, the major peaks are divided into 2 portions. The peaks at 621, 1119 and 1658 $cm^{-1}$are for the Al-O portion while the other peaks (3266, 1633, and 1350 cm^{-1}) are for poly[AM-*co*-(AA)].

APPENDIX B

Acrylamide by Gas Chromatography

The standard method for determining the acrylamide monomer is based on Method 8032A. The procedures of sample preparation have two steps which are bromination and extraction. The determination of residual acrylamide monomer was carried out from bromination reaction of acrylamide monomer to form 2,3-dibromopropionamide. The data of this experiment is shown in Figure A-1 and Table B-1

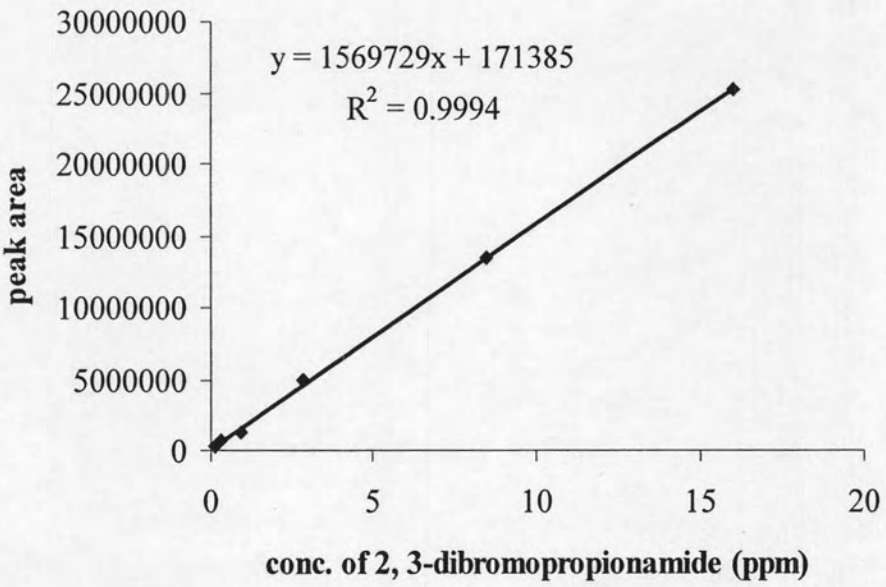

Figure B-1 Calibration curve of 2, 3-dibromopropionamide concentration and peak area

Table B-1 Data for determination of residual acrylamide monomer

Initial AM concentration (ppm)	Peak area of 2, 3-dibromo propionamide	Concentration of 2, 3-dibromo-propionamide (ppm)	Concentration of residual acrylamide[1] (ppm)	Residual acrylamide (%)
63972	11051829	6.93	42.65	0.07
65394	19820661	12.52	77.05	0.12
66815	16159361	10.19	62.69	0.09
68237	17456254	11.01	67.81	0.10
69658	16551567	10.44	64.26	0.09
71080	16233670	10.23	62.98	0.09

[1]Dilution factor of 20

APPENDIX C

Preparation of Buffer Solutions

The buffer solutions were prepared by mixing the exact amounts of each solution. Table C-1 listed the amounts of two solutions for preparing 150 ml of each buffer.

Solution 1:

Anhydrous boric acid (12.37 g) and citric acid monohydrate (10.51 g) were dissolved in distilled water and dilute to 1 L in a volumetric flask. This makes a 0.2 M boric acid and a 0.05 M citric acid solution.

Solution 2:

Tri-sodium phosphate (38.01 g) was dissolved in distilled water and dilute to 1 L in a volumetric flask. This makes a 0.1 M tertiary sodium phosphate solution.

Table C-1 Preparation of buffer solutions

Desired pH	Solution 1 (ml)	Solution 2 (ml)
5.0	100.50	49.50
7.0	74.25	75.75
9.0	51.75	98.25
11.0	33.00	117.00

VITA

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