APPENDICES

Appendix 1: Ferric iron nucleation and solubility curves

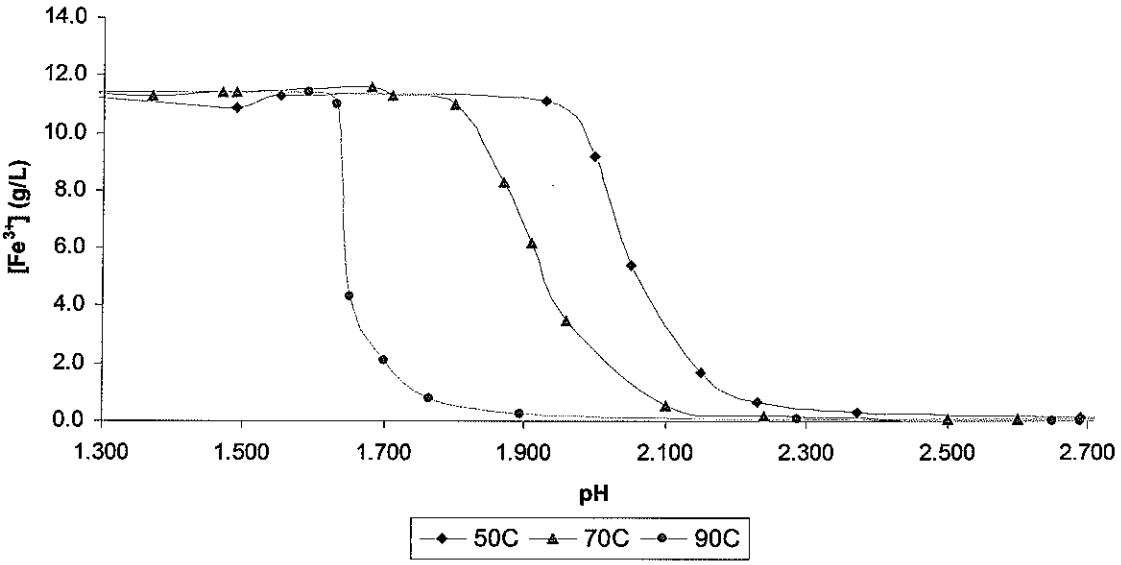

Figure A1.1. Nucleation data for ferric iron determined at 50, 70 and 90°C. The pH was changed stepwise in increments of 0.5 pH units every 20 minutes. The pH was controlled by adding $Ca(OH)_2$, ZnO powder and 98% H_2SO_4.

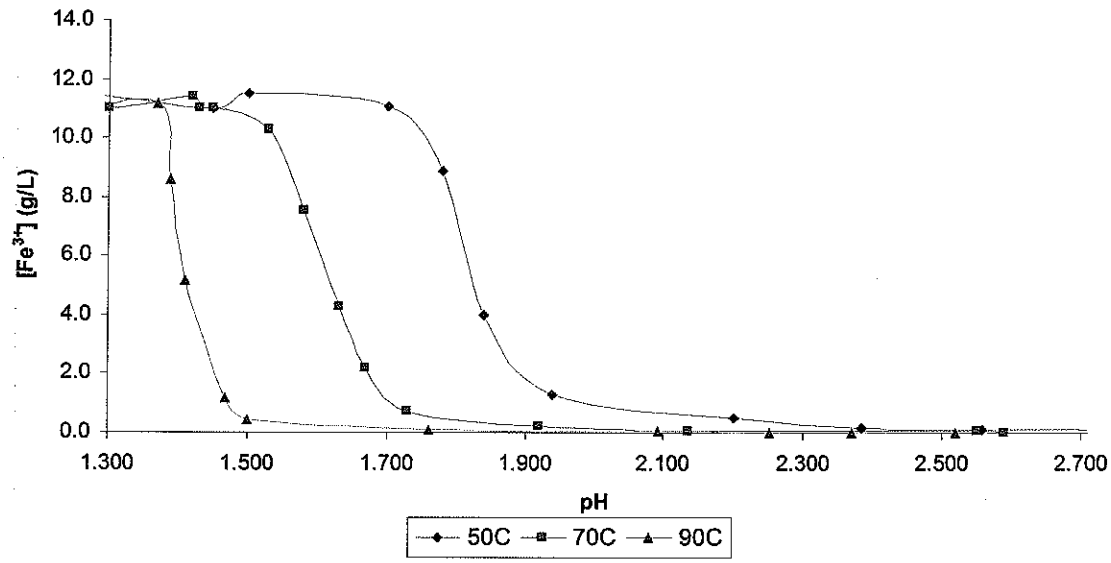

Figure A1.2. Solubilization data for ferric iron determined at 50, 70 and 90°C. The pH was changed stepwise in increments of 0.5 pH units every 20 minutes. The pH was controlled by adding $Ca(OH)_2$, ZnO powder and 98% H_2SO_4.

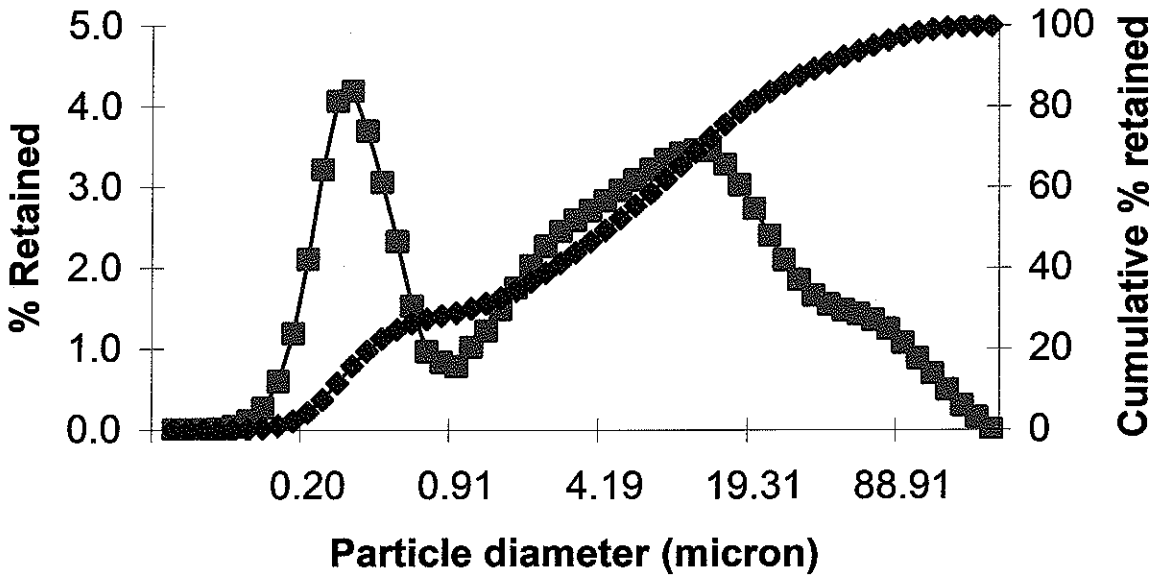

Figure A1.3. Particle size distribution of the seed material used to determine the influence of seed mass on agglomeration as determined by a Malvern Mastersizer.

Appendix 2: Ferric iron equilibrium solubility data as calculated by STABCAL™

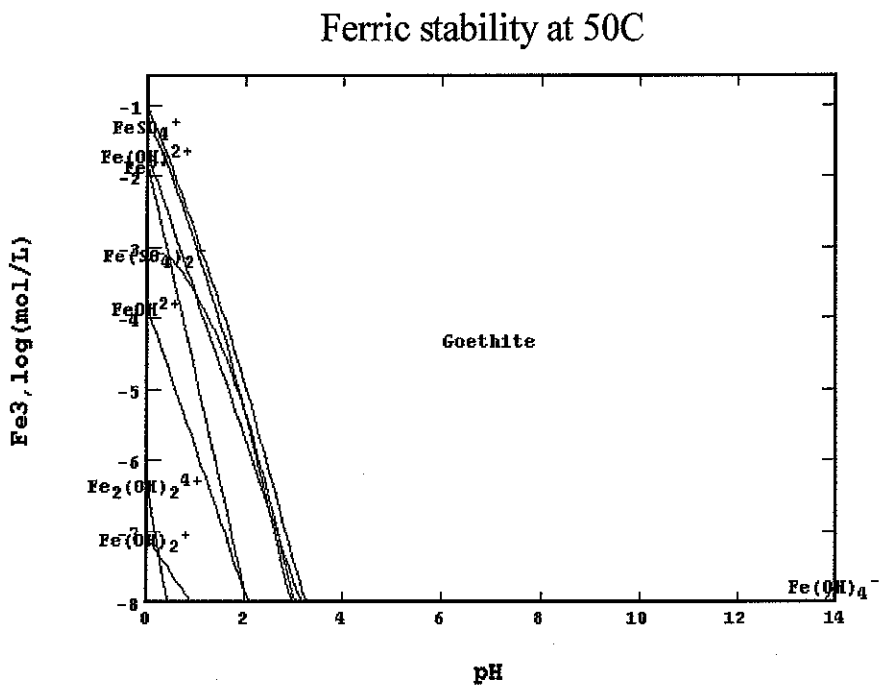

Figure A2.1. Ferric ion stability diagram determined with the STABCAL™ NBS-database at 50°C.

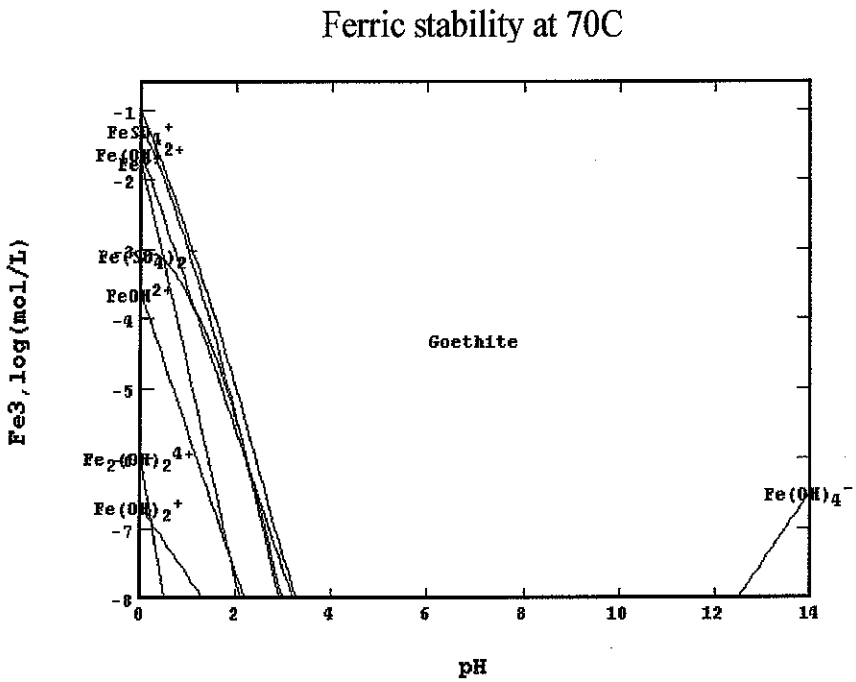

Figure A2.2. Ferric ion stability diagram determined with the STABCAL™ NBS-database at 70°C.

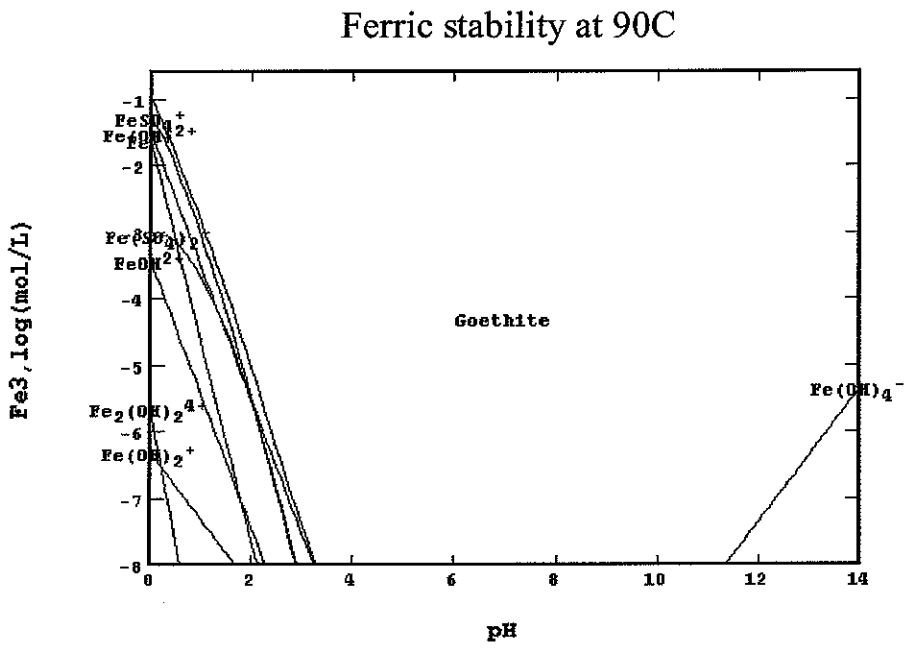

Figure A2.3. Ferric ion stability diagram determined with the STABCAL™ NBS-database at 90°C.

Appendix 3:

Table A3.1. Spreadsheet used to calculate particle population density from Malvern particle analysis data.

total solid mass (g)	5.00E+01	measured from the total mass of sample or calculated from a process mass balance				
rho solid (kg/m3)	3232					
vol ppted (m3)	1.55E-05					
*SIZES*um	Vol %	Delta L (m)	Lbar (m)	N (1/m3)	n(L) (1/m4) =N/Delta L	n(L) * Lbar (1/m3)
0.05	0.00					
0.06	0.00041	1.00E-08	6.50E-08	2.83E+12	2.83E+20	1.84E+13
0.07	0.00126	1.00E-08	7.50E-08	2.87E+11	2.87E+19	2.15E+12
0.08	0.00326	1.00E-08	8.50E-08	6.06E+11	6.06E+19	5.15E+12
0.09	0.00836	1.00E-08	9.50E-08	1.12E+12	1.12E+20	1.07E+13
0.11	0.02145	2.00E-08	1.20E-07	1.43E+12	7.15E+19	8.58E+12
0.13	0.05364	1.50E-08	1.33E-07	2.72E+12	1.82E+20	2.41E+13
0.15	0.12592	2.06E-08	1.56E-07	4.18E+12	2.03E+20	3.17E+13
41.43	0.56831	5.87E-06	4.44E-05	2.42E+06	4.13E+11	1.83E+07
48.27	0.39668	6.84E-06	5.17E-05	1.22E+06	1.78E+11	9.20E+06
56.23	0.21086	7.96E-06	6.02E-05	5.37E+05	6.74E+10	4.06E+06
65.51	0.05121	9.28E-06	7.01E-05	1.81E+05	1.95E+10	1.36E+06
76.32	0.00937	1.08E-05	8.17E-05	2.77E+04	2.57E+09	2.10E+05
88.91	0.00258	1.26E-05	9.52E-05	3.21E+03	2.55E+08	2.43E+04
103.58	0.00051	1.47E-05	1.11E-04	5.59E+02	3.81E+07	4.22E+03
120.67	0.00007	1.71E-05	1.29E-04	6.98E+01	4.09E+06	5.28E+02
140.58	0	1.99E-05	1.51E-04	6.06E+00	3.05E+05	4.58E+01
163.77	0.00764	2.32E-05	1.75E-04	0.00E+00	0.00E+00	0.00E+00
190.80	0.50994	2.70E-05	2.04E-04	2.65E+02	9.80E+06	2.00E+03
222.28	1.92305	3.15E-05	2.38E-04	1.12E+04	3.55E+08	8.45E+04
258.95	3.96071	3.67E-05	2.77E-04	2.66E+04	7.27E+08	2.01E+05
301.68	4.71965	4.27E-05	3.23E-04	3.47E+04	8.12E+08	2.62E+05
351.46	3.57416	4.98E-05	3.76E-04	2.62E+04	5.26E+08	1.98E+05
409.45	1.78791	5.80E-05	4.38E-04	1.25E+04	2.16E+08	9.47E+04
477.01	0.46826	6.76E-05	5.11E-04	3.96E+03	5.87E+07	3.00E+04
555.71	0	7.87E-05	5.95E-04	6.57E+02	8.34E+06	4.96E+03
647.41	0	9.17E-05	6.93E-04	0.00E+00	0.00E+00	0.00E+00
			m0	**8.19E+13**		
			m1	**8.89E+06**		
			m2	**3.77E+00**		
			m3	**8.98E-06**		
			m4	**1.34E-10**		
			lbar1,0	**1.09E-07**		

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