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APPENDICES

Appendix A

Table A-1 Experimental data of plasticity of pure clay (PC)

Formula	PC				
Container #	1	2	3	4	5
No. of Blows	53	43	30	23	13
Container Wt. (g)	4.43	4.95	4.09	4.38	4.87
Wet Wt + Container (g)	10.93	11.19	10.60	11.25	12.26
Dry Wt + Container (g)	9.66	9.09	8.27	8.69	8.54
Wt of Water (g)	1.27	2.10	2.33	2.56	3.72
Dry Wt of Soil (g)	5.23	4.14	4.18	4.31	3.67
Water Content (%)	24.28	50.72	55.74	59.40	101.36

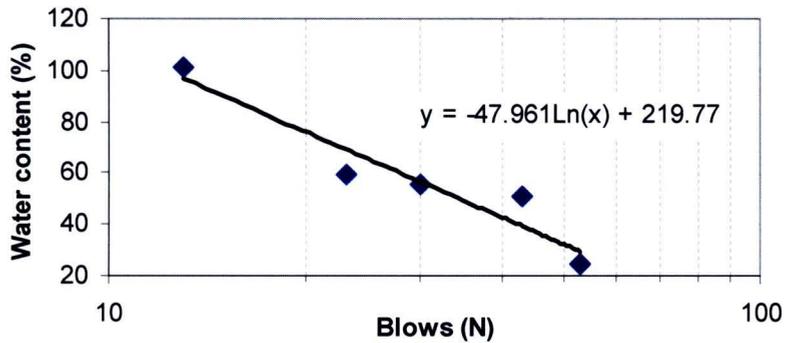


Table A-2 Experimental data of plasticity of normal formula (NF)

Formula	NF				
Container #	1	2	3	4	5
No. of Blows	41.00	32.00	22.00	16.00	10.00
Container Wt. (g)	4.06	4.44	4.34	4.12	4.91
Wet Wt + Container (g)	11.00	11.10	11.26	11.10	11.61
Dry Wt + Container (g)	8.84	8.91	8.88	8.61	9.04
Wt of Water (g)	2.16	2.19	2.38	2.49	2.57
Dry Wt of Soil (g)	4.78	4.47	4.54	4.49	4.13
Water Content (%)	45.19	48.99	52.42	55.46	62.23

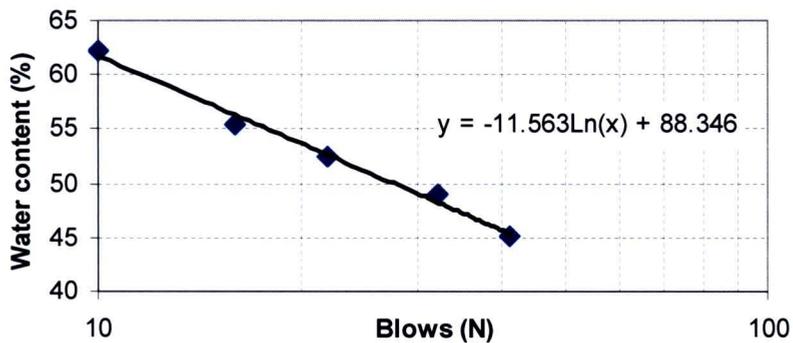


Table A-3 Experimental data of plasticity of NS50

Formula	NS50				
Container #	1	2	3	4	5
No. of Blows	42.00	33.00	23.00	14.00	8.00
Container Wt. (g)	6.51	1.66	1.82	1.90	1.53
Wet Wt + Container (g)	11.99	7.32	6.47	6.11	6.34
Dry Wt + Container (g)	10.17	5.38	4.79	4.50	4.29
Wt of Water (g)	1.82	1.94	1.68	1.61	2.05
Dry Wt of Soil (g)	3.66	3.72	2.97	2.60	2.76
Water Content (%)	49.73	52.15	56.57	61.92	74.28

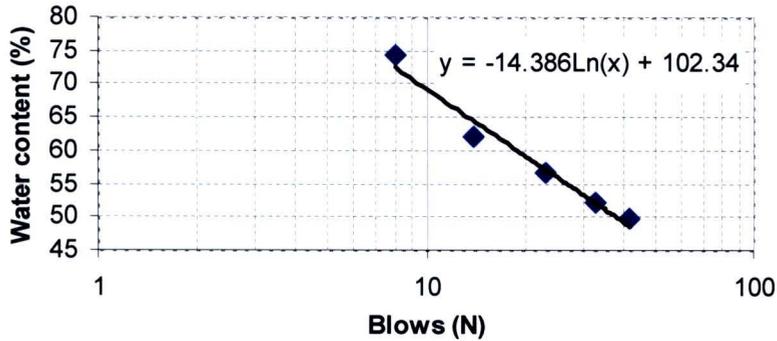


Table A-4 Experimental data of plasticity of NS100

Formula	NS100				
Container #	1	2	3	4	5
No. of Blows	51	41	37	26	13
Container Wt. (g)	4.94	4.96	4.24	4.22	4.38
Wet Wt + Container (g)	11.3	11.59	9.58	10.8	10.68
Dry Wt + Container (g)	9.29	9.44	7.79	8.52	8.33
Wt of Water (g)	2.01	2.15	1.79	2.28	2.35
Dry Wt of Soil (g)	4.35	4.48	3.55	4.3	3.95
Water Content (%)	46.21	47.99	50.42	53.02	59.49

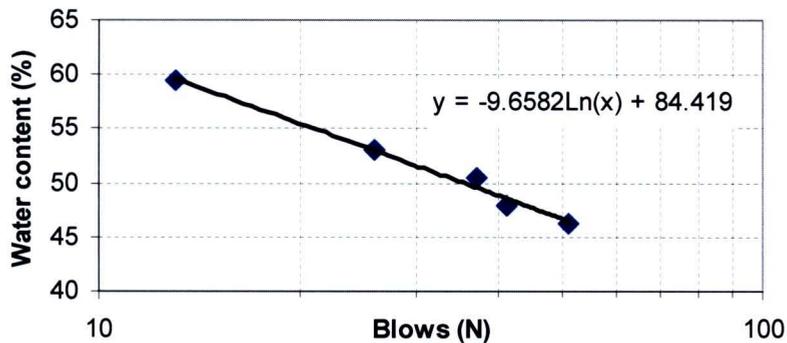


Table A-5 Experimental data of plasticity of 3RHA50

Formula	3RHA50				
Container #	1	2	3	4	5
No. of Blows	54	43	35	23	13
Container Wt. (g)	4.94	4.29	2.69	4.42	4.41
Wet Wt + Container (g)	10.68	9.75	8.87	9.01	10.48
Dry Wt + Container (g)	8.94	7.99	6.81	7.39	8.14
Wt of Water (g)	1.74	1.76	2.06	1.62	2.34
Dry Wt of Soil (g)	4.00	3.70	4.12	2.97	3.73
Water Content (%)	43.50	47.57	50.00	54.55	62.73

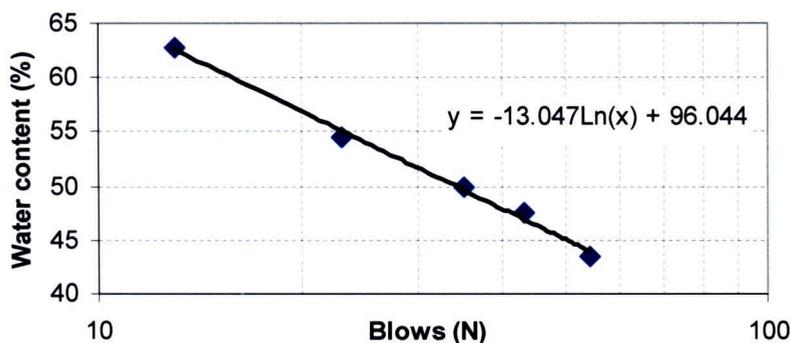


Table A-6 Experimental data of plasticity of 3RHA100

Formula	3RHA100				
Container #	1	2	3	4	5
No. of Blows	48	38	28	19	11
Container Wt. (g)	1.59	5.16	4.21	4.41	4.96
Wet Wt + Container (g)	6.57	10.09	9.06	8.86	10.15
Dry Wt + Container (g)	5.03	8.5	7.43	7.27	8.16
Wt of Water (g)	1.54	1.59	1.63	1.59	1.99
Dry Wt of Soil (g)	3.44	3.34	3.22	2.86	3.20
Water Content (%)	44.77	47.60	50.62	55.59	62.19

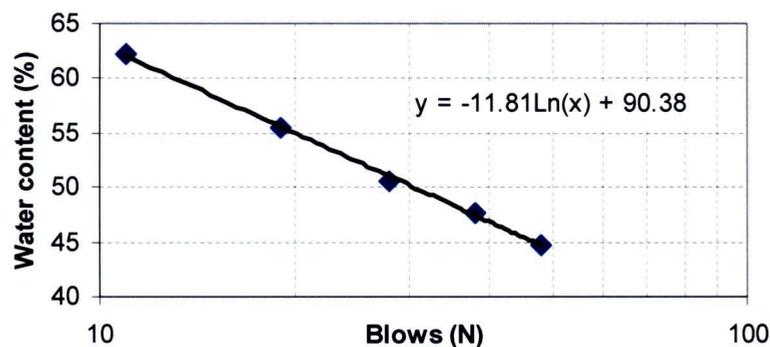


Table A-7 Experimental data of plasticity of 6RHA50

Formula	6RHA50				
Container #	1	2	3	4	5
No. of Blows	45	33	24	18	10
Container Wt. (g)	4.46	4.39	1.54	1.73	1.87
Wet Wt + Container (g)	9.40	9.59	6.88	7.30	6.98
Dry Wt + Container (g)	7.84	7.92	5.05	5.30	4.94
Wt of Water (g)	1.56	1.67	1.83	2.00	2.04
Dry Wt of Soil (g)	3.38	3.53	3.51	3.57	3.07
Water Content (%)	46.15	47.31	52.14	56.02	66.45

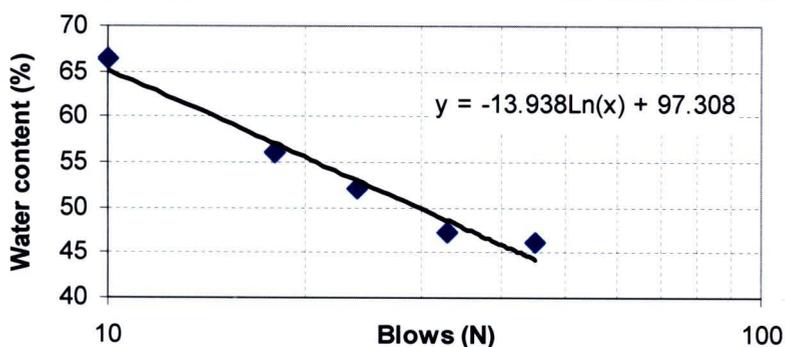


Table A-8 Experimental data of plasticity of 6RHA100

Formula	6RHA100				
Container #	1	2	3	4	5
No. of Blows	48	31	27	19	12
Container Wt. (g)	2.70	4.45	1.90	4.10	1.65
Wet Wt + Container (g)	8.69	10.85	8.36	10.17	7.45
Dry Wt + Container (g)	6.84	8.83	6.25	8.08	5.25
Wt of Water (g)	1.85	2.02	2.11	2.09	2.20
Dry Wt of Soil (g)	4.14	4.38	4.35	3.98	3.60
Water Content (%)	44.69	46.12	48.51	52.51	61.11

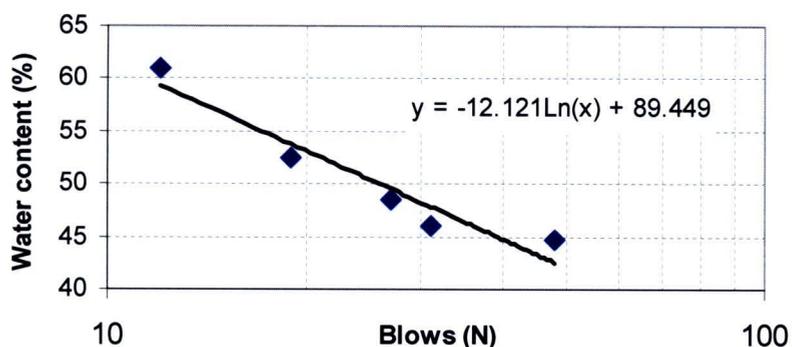


Table A-9 Experimental data of plasticity of 9RHA50

Formula	9RHA50				
Container #	1	2	3	4	5
No. of Blows	52	44	34	25	17
Container Wt. (g)	4.35	4.41	4.37	4.92	6.50
Wet Wt + Container (g)	9.08	10.09	9.20	10.67	11.77
Dry Wt + Container (g)	7.63	8.29	7.64	8.74	9.88
Wt of Water (g)	1.45	1.80	1.56	1.93	1.89
Dry Wt of Soil (g)	3.28	3.88	3.27	3.82	3.38
Water Content (%)	44.21	46.39	47.71	50.52	55.92

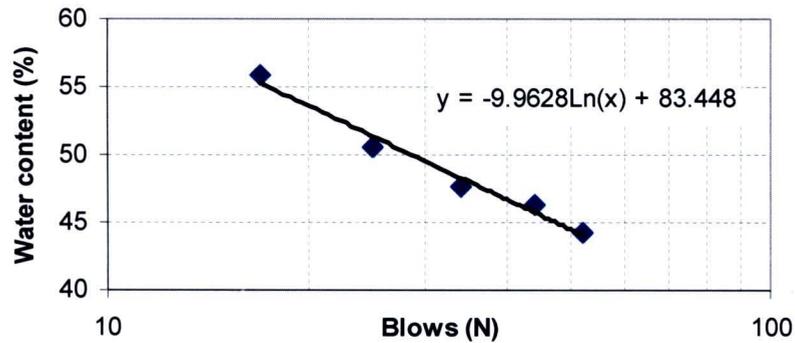
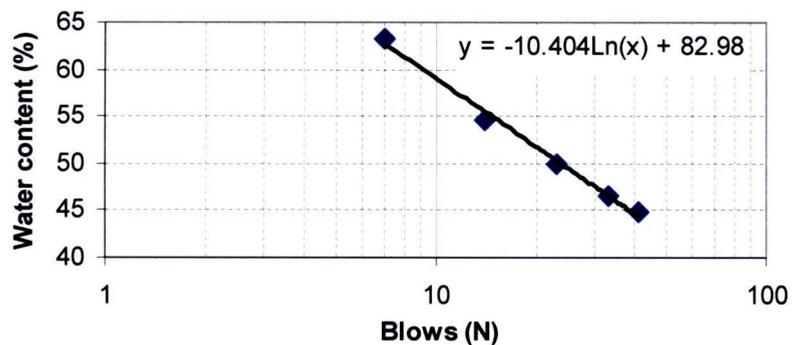


Table A-10 Experimental data of plasticity of 9RHA100

Formula	9RHA100				
Container #	1	2	3	4	5
No. of Blows	41	33	23	14	7
Container Wt. (g)	4.06	4.95	4.95	4.42	4.27
Wet Wt + Container (g)	9.22	10.45	10.18	10.81	10.07
Dry Wt + Container (g)	7.62	8.70	8.44	8.55	7.82
Wt of Water (g)	1.60	1.75	1.74	2.26	2.25
Dry Wt of Soil (g)	3.56	3.75	3.49	4.13	3.55
Water Content (%)	44.94	46.67	49.86	54.72	63.38



Appendix B

Table B-1 Experimental data of firing shrinkage of fired bodies at 900 °C

900 °C						
Formula	Specimen #	Length before firing	Length after fired	Linear firing shrinkage (%)	Avg. (%)	S.D.
		(cm)	(cm)			
NC	1	11.11	10.97	1.26	1.07	0.21
	2	11.27	11.14	1.15		
	3	11.12	11.01	0.99		
	4	11.28	11.13	1.33		
	5	11.24	11.10	1.25		
	6	11.21	11.08	1.16		
	7	11.14	11.01	1.17		
	8	11.14	11.04	0.90		
	9	11.23	11.15	0.71		
	10	11.05	10.96	0.81		
NF	1	11.17	11.07	0.90	0.90	0.15
	2	11.16	11.09	0.63		
	3	11.20	11.10	0.89		
	4	11.13	11.04	0.81		
	5	11.17	11.05	1.07		
	6	11.17	11.05	1.07		
	7	11.18	11.09	0.81		
	8	11.14	11.05	0.81		
	9	11.23	11.13	0.89		
	10	11.04	10.92	1.09		
NS50	1	11.46	11.36	0.87	0.98	0.11
	2	11.41	11.31	0.88		
	3	11.42	11.33	0.79		
	4	11.49	11.36	1.13		
	5	11.48	11.37	0.96		
	6	11.32	11.21	0.97		
	7	11.48	11.36	1.05		
	8	11.37	11.25	1.06		
	9	11.26	11.14	1.07		
	10	11.34	11.22	1.06		
NS100	1	11.46	11.35	0.96	1.05	0.30
	2	11.27	11.16	0.98		
	3	11.40	11.26	1.23		
	4	11.50	11.39	0.96		
	5	11.36	11.23	1.14		
	6	11.34	11.26	0.71		
	7	11.52	11.42	0.87		
	8	11.31	11.17	1.24		
	9	11.33	11.25	0.71		
	10	11.09	10.90	1.71		
3RHA50	1	11.04	10.94	0.91	0.89	0.15
	2	11.09	10.98	0.99		
	3	11.13	11.01	1.08		
	4	11.09	11.00	0.81		
	5	11.23	11.13	0.89		
	6	11.16	11.06	0.90		
	7	11.16	11.07	0.81		
	8	11.12	11.06	0.54		
	9	11.20	11.09	0.98		
	10	11.21	11.10	0.98		

900 °C						
Formula	Specimen #	Length before firing	Length after fired	Linear firing shrinkage (%)	Avg. (%)	S.D.
		(cm)	(cm)			
3RHA100	1	11.27	11.18	0.80	0.87	0.20
	2	11.40	11.30	0.88		
	3	11.38	11.26	1.05		
	4	11.28	11.15	1.15		
	5	11.27	11.17	0.89		
	6	11.21	11.10	0.98		
	7	11.22	11.13	0.80		
	8	11.16	11.11	0.45		
	9	11.27	11.19	0.71		
	10	11.35	11.24	0.97		
6RHA50	1	11.54	11.43	0.95	0.74	0.26
	2	11.31	11.23	0.71		
	3	11.45	11.35	0.87		
	4	11.27	11.17	0.89		
	5	11.46	11.39	0.61		
	6	11.32	11.23	0.80		
	7	11.47	11.36	0.96		
	8	11.28	11.18	0.89		
	9	11.42	11.35	0.61		
	10	11.36	11.35	0.09		
6RHA100	1	11.33	11.21	1.06	0.97	0.14
	2	11.34	11.24	0.88		
	3	11.26	11.12	1.24		
	4	11.27	11.18	0.80		
	5	11.32	11.21	0.97		
	6	11.41	11.29	1.05		
	7	11.52	11.41	0.95		
	8	11.19	11.10	0.80		
	9	11.38	11.26	1.05		
	10	11.44	11.34	0.87		
9RHA50	1	11.44	11.36	0.70	0.70	0.15
	2	11.48	11.42	0.52		
	3	11.31	11.22	0.80		
	4	11.29	11.21	0.71		
	5	11.27	11.19	0.71		
	6	11.21	11.12	0.80		
	7	11.42	11.38	0.35		
	8	11.28	11.19	0.80		
	9	11.12	11.03	0.81		
	10	11.25	11.16	0.80		
9RHA100	1	11.37	11.28	0.79	0.75	0.18
	2	11.49	11.45	0.35		
	3	11.40	11.29	0.96		
	4	11.47	11.41	0.52		
	5	11.47	11.38	0.78		
	6	11.40	11.30	0.88		
	7	11.48	11.39	0.78		
	8	11.45	11.36	0.79		
	9	11.45	11.36	0.79		
	10	11.24	11.14	0.89		

Table B-2 Experimental data of firing shrinkage of fired bodies at 950 °C

950 °C						
Formula	Specimen #	Length before firing (cm)	Length after fired (cm)	Linear firing shrinkage (%)	Avg. (%)	S.D.
NC	1	11.17	10.95	1.97	1.89	0.23
	2	11.15	10.97	1.61		
	3	11.26	11.00	2.31		
	4	11.33	11.12	1.85		
	5	11.20	11.00	1.79		
	6	11.19	10.95	2.14		
	7	11.16	10.97	1.70		
	8	11.16	10.93	2.06		
	9	11.25	11.07	1.60		
	10	11.25	11.04	1.87		
NF	1	11.15	10.95	1.79	1.78	0.48
	2	11.07	10.86	1.90		
	3	11.41	11.30	0.96		
	4	11.23	11.10	1.16		
	5	11.15	10.93	1.97		
	6	11.41	11.26	1.31		
	7	11.19	10.93	2.32		
	8	11.11	10.89	1.98		
	9	11.13	10.90	2.07		
	10	11.19	10.93	2.32		
NS50	1	11.45	11.22	2.01	1.73	0.32
	2	11.29	11.14	1.33		
	3	11.39	11.22	1.49		
	4	11.37	11.20	1.50		
	5	11.35	11.12	2.03		
	6	11.32	11.11	1.86		
	7	11.47	11.23	2.09		
	8	11.44	11.30	1.22		
	9	11.43	11.20	2.01		
	10	11.37	11.17	1.76		
NS100	1	11.42	11.22	1.75	1.92	0.24
	2	11.38	11.14	2.11		
	3	11.34	11.13	1.85		
	4	11.30	11.05	2.21		
	5	11.29	11.04	2.21		
	6	11.39	11.22	1.49		
	7	11.28	11.04	2.13		
	8	11.42	11.23	1.66		
	9	11.35	11.14	1.85		
	10	11.43	11.21	1.92		
3RHA50	1	11.20	11.00	1.79	1.72	0.24
	2	11.35	11.10	2.20		
	3	11.14	10.97	1.53		
	4	11.14	10.93	1.89		
	5	11.28	11.12	1.42		
	6	11.25	11.04	1.87		
	7	11.14	10.96	1.62		
	8	11.31	11.10	1.86		
	9	11.27	11.10	1.51		
	10	11.23	11.06	1.51		

950 °C						
Formula	Specimen #	Length before firing (cm)	Length after fired (cm)	Linear firing shrinkage (%)	Avg. (%)	S.D.
3RHA100	1	11.20	11.02	1.61	1.71	0.15
	2	11.17	10.99	1.61		
	3	11.15	10.96	1.70		
	4	11.31	11.13	1.59		
	5	11.27	11.07	1.77		
	6	11.27	11.09	1.60		
	7	11.29	11.09	1.77		
	8	11.23	11.05	1.60		
	9	11.28	11.08	1.77		
	10	11.17	10.94	2.06		
6RHA50	1	11.36	11.20	1.41	1.67	0.19
	2	11.40	11.23	1.49		
	3	11.44	11.25	1.66		
	4	11.43	11.24	1.66		
	5	11.29	11.10	1.68		
	6	11.29	11.08	1.86		
	7	11.36	11.16	1.76		
	8	11.29	11.13	1.42		
	9	11.38	11.15	2.02		
	10	11.45	11.25	1.75		
6RHA100	1	11.41	11.24	1.49	1.58	0.20
	2	11.47	11.31	1.39		
	3	11.36	11.17	1.67		
	4	11.33	11.12	1.85		
	5	11.30	11.11	1.68		
	6	11.27	11.13	1.24		
	7	11.26	11.09	1.51		
	8	11.38	11.22	1.41		
	9	11.30	11.11	1.68		
	10	11.39	11.18	1.84		
9RHA50	1	11.37	11.16	1.85	1.42	0.23
	2	11.51	11.37	1.22		
	3	11.32	11.15	1.50		
	4	11.25	11.07	1.60		
	5	11.37	11.19	1.58		
	6	11.46	11.34	1.05		
	7	11.42	11.27	1.31		
	8	11.47	11.32	1.31		
	9	11.31	11.16	1.33		
	10	11.29	11.12	1.51		
9RHA100	1	11.40	11.22	1.58	1.55	0.13
	2	11.26	11.10	1.42		
	3	11.30	11.14	1.42		
	4	11.38	11.20	1.58		
	5	11.48	11.31	1.48		
	6	11.43	11.24	1.66		
	7	11.48	11.30	1.57		
	8	11.30	11.14	1.42		
	9	11.31	11.14	1.50		
	10	11.44	11.23	1.84		

Table B-3 Experimental data of firing shrinkage of fired bodies at 1000 °C

1000 °C						
Formula	Specimen #	Length before firing (cm)	Length after fired (cm)	Linear firing shrinkage (%)	Avg. (%)	S.D.
NC	1	11.28	10.76	4.61	3.72	0.52
	2	11.10	10.78	2.88		
	3	11.29	10.93	3.19		
	4	11.15	10.70	4.04		
	5	11.31	10.86	3.98		
	6	11.28	10.84	3.90		
	7	11.03	10.64	3.54		
	8	11.22	10.76	4.10		
	9	11.27	10.84	3.82		
	10	11.30	10.94	3.19		
NF	1	11.09	10.65	3.97	3.31	0.39
	2	11.21	10.92	2.59		
	3	11.17	10.84	2.95		
	4	11.05	10.64	3.71		
	5	11.10	10.74	3.24		
	6	11.10	10.72	3.42		
	7	11.08	10.71	3.34		
	8	11.12	10.78	3.06		
	9	11.26	10.86	3.55		
	10	11.15	10.79	3.23		
NS50	1	11.44	11.20	2.10	3.11	0.44
	2	11.40	11.04	3.16		
	3	11.46	11.12	2.97		
	4	11.43	11.05	3.32		
	5	11.46	11.09	3.23		
	6	11.39	11.05	2.99		
	7	11.34	10.99	3.09		
	8	11.39	10.96	3.78		
	9	11.38	10.98	3.51		
	10	11.36	11.02	2.99		
NS100	1	11.47	11.07	3.49	3.16	0.42
	2	11.39	10.99	3.51		
	3	11.34	11.03	2.73		
	4	11.45	11.08	3.23		
	5	11.30	11.03	2.39		
	6	11.35	11.05	2.64		
	7	11.50	11.10	3.48		
	8	11.44	11.08	3.15		
	9	11.43	11.04	3.41		
	10	11.45	11.04	3.58		
3RHA50	1	11.19	10.80	3.49	3.06	0.41
	2	11.22	10.92	2.67		
	3	11.22	10.90	2.85		
	4	11.07	10.67	3.61		
	5	11.29	10.93	3.19		
	6	11.12	10.84	2.52		
	7	11.09	10.68	3.70		
	8	11.12	10.80	2.88		
	9	11.06	10.75	2.80		
	10	11.10	10.78	2.88		

1000 °C						
Formula	Specimen #	Length before firing (cm)	Length after fired (cm)	Linear firing shrinkage (%)	Avg. (%)	S.D.
3RHA100	1	11.08	10.66	3.79	3.07	0.45
	2	11.06	10.77	2.62		
	3	11.08	10.74	3.07		
	4	11.20	10.94	2.32		
	5	11.26	10.90	3.20		
	6	11.33	11.03	2.65		
	7	11.36	10.99	3.26		
	8	11.30	10.97	2.92		
	9	11.27	10.90	3.28		
	10	11.18	10.78	3.58		
6RHA50	1	11.25	10.95	2.67	2.83	0.48
	2	11.26	10.83	3.82		
	3	11.34	10.97	3.26		
	4	11.27	11.00	2.40		
	5	11.36	11.02	2.99		
	6	11.34	11.04	2.65		
	7	11.50	11.15	3.04		
	8	11.40	11.16	2.11		
	9	11.47	11.15	2.79		
	10	11.33	11.04	2.56		
6RHA100	1	11.38	11.05	2.90	2.86	0.31
	2	11.35	11.05	2.64		
	3	11.30	10.93	3.27		
	4	11.28	11.00	2.48		
	5	11.34	11.00	3.00		
	6	11.37	10.98	3.43		
	7	11.31	11.00	2.74		
	8	11.29	10.97	2.83		
	9	11.42	11.14	2.45		
	10	11.36	11.04	2.82		
9RHA50	1	11.42	11.10	2.80	2.50	0.28
	2	11.24	10.95	2.58		
	3	11.24	10.95	2.58		
	4	11.30	11.06	2.12		
	5	11.30	10.99	2.74		
	6	11.14	10.90	2.15		
	7	11.32	11.08	2.12		
	8	11.29	11.02	2.39		
	9	11.35	11.03	2.82		
	10	11.30	11.00	2.65		
9RHA100	1	11.64	11.33	2.66	2.46	0.33
	2	11.59	11.29	2.59		
	3	11.56	11.29	2.34		
	4	11.60	11.32	2.41		
	5	11.34	11.08	2.29		
	6	11.40	11.05	3.07		
	7	11.41	11.16	2.19		
	8	11.20	10.90	2.68		
	9	11.57	11.28	2.51		
	10	11.43	11.22	1.84		

Table B-4 Experimental data of firing shrinkage of fired bodies at 1050 °C

1050 °C						
Formula	Specimen #	Length before firing (cm)	Length after fired (cm)	Linear firing shrinkage	Avg. (%)	S.D.
NC	1	11.25	10.73	4.62	5.20	0.32
	2	11.20	10.58	5.54		
	3	11.25	10.70	4.89		
	4	11.16	10.55	5.47		
	5	11.23	10.62	5.43		
	6	11.18	10.60	5.19		
	7	11.26	10.67	5.24		
	8	11.20	10.66	4.82		
	9	11.14	10.53	5.48		
	10	11.20	10.60	5.36		
NF	1	11.20	10.67	4.73	4.62	0.49
	2	11.20	10.70	4.46		
	3	11.20	10.65	4.91		
	4	11.20	10.70	4.46		
	5	11.15	10.67	4.30		
	6	11.18	10.60	5.19		
	7	11.12	10.60	4.68		
	8	11.21	10.76	4.01		
	9	11.11	10.50	5.49		
	10	11.18	10.74	3.94		
NS50	1	11.39	10.87	4.57	4.41	0.20
	2	11.39	10.90	4.30		
	3	11.36	10.87	4.31		
	4	11.27	10.74	4.70		
	5	11.38	10.87	4.48		
	6	11.34	10.87	4.14		
	7	11.44	10.94	4.37		
	8	11.43	10.96	4.11		
	9	11.48	10.95	4.62		
	10	11.25	10.74	4.53		
NS100	1	11.35	10.84	4.49	4.38	0.30
	2	11.29	-	-		
	3	11.35	10.83	4.58		
	4	11.36	10.86	4.40		
	5	11.33	10.86	4.15		
	6	11.31	10.78	4.69		
	7	11.51	10.99	4.52		
	8	11.40	10.98	3.68		
	9	11.30	10.80	4.42		
	10	11.39	10.88	4.48		
3RHA50	1	11.31	10.82	4.33	4.27	0.21
	2	11.20	10.70	4.46		
	3	11.13	10.67	4.13		
	4	11.21	10.74	4.19		
	5	11.30	10.80	4.42		
	6	11.18	10.69	4.38		
	7	11.21	10.73	4.28		
	8	11.20	10.78	3.75		
	9	11.09	10.62	4.24		
	10	11.23	10.73	4.45		

1050 °C						
Formula	Specimen #	Length before firing (cm)	Length after fired (cm)	Linear firing shrinkage (%)	Avg. (%)	S.D.
3RHA100	1	11.20	10.72	4.29	4.27	0.19
	2	11.15	10.69	4.13		
	3	11.32	10.81	4.51		
	4	11.17	10.66	4.57		
	5	11.26	10.81	4.00		
	6	11.20	10.70	4.46		
	7	11.15	10.70	4.04		
	8	11.22	10.74	4.28		
	9	11.34	10.86	4.23		
	10	11.20	10.73	4.20		
6RHA50	1	11.35	10.91	3.88	3.94	0.11
	2	11.26	10.82	3.91		
	3	11.34	10.90	3.88		
	4	11.25	10.80	4.00		
	5	11.19	10.73	4.11		
	6	11.38	10.91	4.13		
	7	11.44	11.00	3.85		
	8	11.37	10.93	3.87		
	9	11.30	10.85	3.98		
	10	11.52	11.08	3.82		
6RHA100	1	11.17	10.71	4.12	4.09	0.72
	2	11.60	10.90	6.03		
	3	11.27	10.84	3.82		
	4	11.42	10.96	4.03		
	5	11.34	10.90	3.88		
	6	11.24	10.86	3.38		
	7	11.39	10.93	4.04		
	8	11.33	10.90	3.80		
	9	11.30	10.84	4.07		
	10	11.31	10.89	3.71		
9RHA50	1	11.18	10.76	3.76	3.45	0.27
	2	11.28	10.88	3.55		
	3	11.44	11.06	3.32		
	4	11.28	10.95	2.93		
	5	11.36	10.94	3.70		
	6	11.30	10.92	3.36		
	7	11.32	10.90	3.71		
	8	11.44	11.08	3.15		
	9	11.37	10.96	3.61		
	10	11.33	10.94	3.44		
9RHA100	1	11.42	11.01	3.59	3.62	0.19
	2	11.34	10.92	3.70		
	3	11.34	10.96	3.35		
	4	11.45	11.08	3.23		
	5	11.28	10.87	3.63		
	6	11.54	11.11	3.73		
	7	11.47	11.05	3.66		
	8	11.36	10.94	3.70		
	9	11.52	11.10	3.65		
	10	11.50	11.05	3.91		

Table B-5 Experimental data of firing shrinkage of fired bodies at 1100 °C

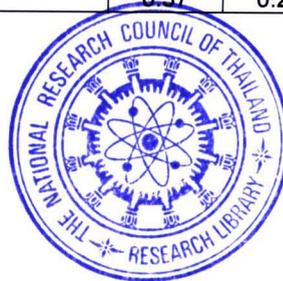
1100 °C						
Formula	Specimen #	Length before firing (cm)	Length after fired (cm)	Linear firing shrinkage (%)	Avg. (%)	S.D.
NC	1	11.31	10.63	6.01	5.89	0.19
	2	11.28	10.62	5.85		
	3	11.15	10.49	5.92		
	4	11.30	10.66	5.66		
	5	11.26	10.59	5.95		
	6	11.24	10.55	6.14		
	7	11.22	10.55	5.97		
	8	11.24	10.55	6.14		
	9	11.16	10.53	5.65		
	10	11.17	10.54	5.64		
NF	1	11.08	10.50	5.23	5.25	0.20
	2	11.20	10.59	5.45		
	3	11.16	10.62	4.84		
	4	11.20	10.64	5.00		
	5	11.06	10.47	5.33		
	6	11.17	10.58	5.28		
	7	11.24	10.62	5.52		
	8	11.14	10.55	5.30		
	9	11.20	10.60	5.36		
	10	11.29	10.70	5.23		
NS50	1	11.45	10.89	4.89	5.03	0.13
	2	11.38	10.82	4.92		
	3	11.42	10.82	5.25		
	4	11.38	10.82	4.92		
	5	11.44	10.86	5.07		
	6	11.56	10.98	5.02		
	7	11.34	10.78	4.94		
	8	11.28	10.69	5.23		
	9	11.41	10.84	5.00		
	10	11.48	10.90	5.05		
NS100	1	11.42	10.84	5.08	4.99	0.22
	2	11.48	10.90	5.05		
	3	11.31	10.74	5.04		
	4	11.30	10.73	5.04		
	5	11.34	10.80	4.76		
	6	11.44	10.84	5.24		
	7	11.43	10.87	4.90		
	8	11.45	10.85	5.24		
	9	11.35	10.84	4.49		
	10	11.39	10.82	5.00		
3RHA50	1	11.14	10.60	4.85	4.88	0.18
	2	11.19	10.66	4.74		
	3	11.15	10.65	4.48		
	4	11.10	10.56	4.86		
	5	11.30	10.72	5.13		
	6	11.13	10.58	4.94		
	7	11.14	10.60	4.85		
	8	11.20	10.64	5.00		
	9	11.20	10.65	4.91		
	10	11.19	10.63	5.00		

1100 °C						
Formula	Specimen #	Length before firing (cm)	Length after fired (cm)	Linear firing shrinkage (%)	Avg. (%)	S.D.
3RHA100	1	11.24	10.70	4.80	4.89	0.12
	2	11.15	10.63	4.66		
	3	11.28	10.71	5.05		
	4	11.20	10.66	4.82		
	5	11.32	10.75	5.04		
	6	11.40	10.85	4.82		
	7	11.14	10.60	4.85		
	8	11.33	10.78	4.85		
	9	11.13	10.58	4.94		
	10	11.38	10.81	5.01		
6RHA50	1	11.50	11.00	4.35	4.41	0.26
	2	11.28	10.78	4.43		
	3	11.40	10.89	4.47		
	4	11.31	10.80	4.51		
	5	11.26	10.77	4.35		
	6	11.42	10.91	4.47		
	7	11.37	10.89	4.22		
	8	11.37	10.80	5.01		
	9	11.23	10.76	4.19		
	10	11.36	10.90	4.05		
6RHA100	1	11.39	10.86	4.65	4.62	0.12
	2	11.25	10.72	4.71		
	3	11.45	10.92	4.63		
	4	11.43	10.90	4.64		
	5	11.31	10.80	4.51		
	6	11.33	10.80	4.68		
	7	11.33	10.81	4.59		
	8	11.35	10.80	4.85		
	9	11.35	10.84	4.49		
	10	11.32	10.82	4.42		
9RHA50	1	11.12	10.68	3.96	4.03	0.12
	2	11.30	10.84	4.07		
	3	11.37	10.93	3.87		
	4	11.38	10.94	3.87		
	5	11.45	10.97	4.19		
	6	11.30	10.85	3.98		
	7	11.25	10.80	4.00		
	8	11.23	10.76	4.19		
	9	11.28	10.82	4.08		
	10	11.22	10.76	4.10		
9RHA100	1	11.41	10.94	4.12	4.08	0.26
	2	11.34	10.92	3.70		
	3	11.29	10.83	4.07		
	4	11.51	11.10	3.56		
	5	11.31	10.84	4.16		
	6	11.59	11.10	4.23		
	7	11.67	11.19	4.11		
	8	11.29	10.80	4.34		
	9	11.32	10.82	4.42		
	10	11.51	11.04	4.08		

Appendix C

Table C Experimental data of bulk density and water absorption of fired bodies at 900°C

900 °C							
Formula	Sample #	D (g)	S (g)	W (g)	A.P. (%)	W.A. (%)	B.D. (g/cm ³)
NC	1	6.12	3.87	6.96	27.18	13.73	1.97
	2	5.82	3.68	6.66	28.19	14.43	1.95
	3	8.20	5.19	9.38	28.16	14.39	1.95
	4	6.14	3.88	7.01	27.80	14.17	1.96
	5	5.86	3.71	6.68	27.61	13.99	1.97
Avg.					27.79	14.14	1.96
S.D.					0.42	0.29	0.01
NF	1	6.87	4.33	7.91	29.05	15.14	1.91
	2	6.79	4.27	7.85	29.61	15.61	1.89
	3	6.43	4.06	7.39	28.83	14.93	1.92
	4	6.39	4.03	7.34	28.70	14.87	1.92
	5	6.99	4.41	8.04	28.93	15.02	1.92
Avg.					29.02	15.11	1.91
S.D.					0.35	0.30	0.01
NS50	1	6.38	3.96	7.42	30.06	16.30	1.84
	2	7.14	4.41	8.28	29.46	15.97	1.84
	3	6.65	4.12	7.71	29.53	15.94	1.85
	4	5.51	3.44	6.39	29.83	15.97	1.86
	5	6.78	4.21	7.85	29.40	15.78	1.86
Avg.					29.65	15.99	1.85
S.D.					0.28	0.19	0.01
NS100	1	6.44	3.97	7.46	29.23	15.84	1.84
	2	6.57	4.08	7.61	29.46	15.83	1.86
	3	6.33	3.91	7.31	28.82	15.48	1.86
	4	6.19	3.87	7.22	30.75	16.64	1.84
	5	6.66	4.13	7.72	29.53	15.92	1.85
Avg.					29.56	15.94	1.85
S.D.					0.72	0.43	0.01
3RHA50	1	6.06	3.79	7.01	29.50	15.68	1.88
	2	6.29	3.94	7.26	29.22	15.42	1.89
	3	6.69	4.18	7.73	29.30	15.55	1.88
	4	6.14	3.85	7.11	29.75	15.80	1.88
	5	6.92	4.31	7.99	29.08	15.46	1.87
Avg.					29.37	15.58	1.88
S.D.					0.27	0.16	0.01
3RHA100	1	6.98	4.36	8.09	29.76	15.90	1.87
	2	6.89	4.31	7.95	29.12	15.38	1.89
	3	6.52	4.07	7.52	28.99	15.34	1.88
	4	6.88	4.31	7.97	29.78	15.84	1.87
	5	6.40	4.00	7.39	29.20	15.47	1.88
Avg.					29.37	15.59	1.88
S.D.					0.37	0.27	0.01



900 °C							
Formula	Sample #	D (g)	S (g)	W (g)	A.P. (%)	W.A. (%)	B.D. (g/cm ³)
6RHA50	1	6.97	4.33	8.11	30.16	16.36	1.84
	2	6.52	4.05	7.57	29.83	16.10	1.85
	3	6.55	4.07	7.62	30.14	16.34	1.84
	4	6.63	4.12	7.69	29.69	15.99	1.85
	5	7.64	4.71	8.90	30.07	16.49	1.82
Avg.					29.98	16.26	1.84
S.D.					0.21	0.20	0.01
6RHA100	1	6.62	4.10	7.69	29.81	16.16	1.84
	2	6.42	3.99	7.51	30.97	16.98	1.82
	3	6.35	3.95	7.36	29.62	15.91	1.86
	4	6.62	4.11	7.69	29.89	16.16	1.84
	5	6.33	3.93	7.39	30.64	16.75	1.82
Avg.					30.18	16.39	1.84
S.D.					0.58	0.45	0.02
9RHA50	1	7.09	4.39	8.30	30.95	17.07	1.81
	2	7.19	4.44	8.42	30.90	17.11	1.80
	3	6.71	4.15	7.85	30.81	16.99	1.81
	4	6.92	4.28	8.12	31.25	17.34	1.80
	5	6.65	4.11	7.79	30.98	17.14	1.80
Avg.					30.98	17.13	1.80
S.D.					0.16	0.13	0.00
9RHA100	1	6.60	4.07	7.73	30.87	17.12	1.80
	2	6.31	3.88	7.39	30.77	17.12	1.79
	3	6.83	4.21	7.97	30.32	16.69	1.81
	4	6.55	4.08	7.67	31.20	17.10	1.82
	5	6.49	4.01	7.58	30.53	16.80	1.81
Avg.					30.74	16.96	1.81
S.D.					0.33	0.21	0.01

Table C-2 Experimental data of bulk density and water absorption of fired bodies at 950°C

950 °C							
Formula	Sample #	D (g)	S (g)	W (g)	A.P. (%)	W.A. (%)	B.D. (g/cm ³)
NC	1	6.78	4.28	7.69	26.69	13.42	1.98
	2	7.97	5.02	9.00	25.88	12.92	2.00
	3	6.32	3.99	7.09	24.84	12.18	2.03
	4	6.90	4.36	7.71	24.18	11.74	2.05
	5	6.52	4.13	7.37	26.23	13.04	2.01
Avg.					25.56	12.66	2.01
S.D.					1.03	0.68	0.03
NF	1	6.99	4.42	7.96	27.40	13.88	1.97
	2	7.22	4.55	8.23	27.45	13.99	1.96
	3	6.94	4.38	7.93	27.89	14.27	1.95
	4	7.63	4.82	8.73	28.13	14.42	1.95
	5	6.65	4.19	7.55	26.79	13.53	1.97
Avg.					27.53	14.02	1.96
S.D.					0.52	0.34	0.01
NS50	1	7.06	4.42	8.15	29.22	15.44	1.89
	2	6.67	4.12	7.66	27.97	14.84	1.88
	3	6.84	4.26	7.86	28.33	14.91	1.89
	4	6.33	3.93	7.28	28.36	15.01	1.88
	5	6.45	4.00	7.39	27.73	14.57	1.90
Avg.					28.32	14.96	1.89
S.D.					0.57	0.32	0.01
NS100	1	7.45	4.62	8.54	27.81	14.63	1.89
	2	6.72	4.16	7.65	26.65	13.84	1.92
	3	6.95	4.30	7.98	27.99	14.82	1.88
	4	6.81	4.22	7.79	27.45	14.39	1.90
	5	6.48	4.02	7.37	26.57	13.73	1.93
Avg.					27.29	14.28	1.91
S.D.					0.66	0.48	0.02
3RHA50	1	6.50	4.07	7.47	28.53	14.92	1.91
	2	7.05	4.42	8.08	28.14	14.61	1.92
	3	6.72	4.21	7.66	27.25	13.99	1.94
	4	6.75	4.23	7.72	27.79	14.37	1.93
	5	6.44	4.03	7.36	27.63	14.29	1.93
Avg.					27.87	14.44	1.92
S.D.					0.49	0.35	0.01
3RHA100	1	7.07	4.43	8.10	28.07	14.57	1.92
	2	6.53	4.08	7.51	28.57	15.01	1.90
	3	6.62	4.14	7.57	27.70	14.35	1.92
	4	6.62	4.14	7.59	28.12	14.65	1.91
	5	6.57	4.10	7.49	27.14	14.00	1.93
Avg.					27.92	14.52	1.92
S.D.					0.53	0.37	0.01
6RHA50	1	6.75	4.19	7.76	28.29	14.96	1.88
	2	6.44	4.00	7.41	28.45	15.06	1.88
	3	6.38	3.97	7.33	28.27	14.89	1.89
	4	5.84	3.63	6.79	30.06	16.27	1.84
	5	6.36	3.96	7.38	29.82	16.04	1.85
Avg.					28.98	15.44	1.87
S.D.					0.89	0.65	0.02

950 °C							
Formula	Sample #	D (g)	S (g)	W (g)	A.P. (%)	W.A. (%)	B.D. (g/cm ³)
6RHA100	1	7.09	4.39	8.16	28.38	15.09	1.87
	2	6.76	4.20	7.81	29.09	15.53	1.87
	3	7.16	4.45	8.23	28.31	14.94	1.89
	4	7.18	4.47	8.28	28.87	15.32	1.88
	5	7.04	4.37	8.08	28.03	14.77	1.89
Avg.					28.54	15.13	1.88
S.D.					0.43	0.30	0.01
9RHA50	1	6.97	4.31	8.07	29.26	15.78	1.85
	2	6.51	4.03	7.57	29.94	16.28	1.83
	3	7.23	4.46	8.39	29.52	16.04	1.83
	4	6.76	4.18	7.85	29.70	16.12	1.84
	5	7.53	4.67	8.73	29.56	15.94	1.85
Avg.					29.59	16.03	1.84
S.D.					0.25	0.19	0.01
9RHA100	1	6.61	4.08	7.65	29.13	15.73	1.85
	2	6.58	4.08	7.67	30.36	16.57	1.83
	3	7.33	4.53	8.52	29.82	16.23	1.83
	4	6.39	3.95	7.42	29.68	16.12	1.84
	5	6.70	4.14	7.78	29.67	16.12	1.83
Avg.					29.73	16.15	1.83
S.D.					0.44	0.30	0.01

Table C-3 Experimental data of bulk density and water absorption of fired bodies at
1000 °C

1000 °C							
Formula	Sample #	D (g)	S (g)	W (g)	A.P. (%)	W.A. (%)	B.D. (g/cm ³)
NC	1	6.75	4.25	7.48	22.60	10.81	2.08
	2	6.39	3.99	6.97	19.46	9.08	2.14
	3	6.13	3.82	6.66	18.66	8.65	2.15
	4	7.34	4.59	8.05	20.52	9.67	2.11
	5	6.84	4.26	7.42	18.35	8.48	2.16
Avg.					19.92	9.34	2.13
S.D.					1.72	0.95	0.03
NF	1	6.90	4.32	7.69	23.44	11.45	2.04
	2	6.60	4.14	7.32	22.64	10.91	2.07
	3	6.06	3.80	6.75	23.39	11.39	2.05
	4	6.02	3.76	6.66	22.07	10.63	2.07
	5	6.58	4.11	7.26	21.59	10.33	2.08
Avg.					22.63	10.94	2.06
S.D.					0.81	0.48	0.02
NS50	1	6.16	3.80	6.89	23.62	11.85	1.99
	2	6.85	4.23	7.76	25.78	13.28	1.93
	3	6.69	4.17	7.57	25.88	13.15	1.96
	4	6.72	4.13	7.54	24.05	12.20	1.96
	5	6.53	4.03	7.29	23.31	11.64	2.00
Avg.					24.53	12.43	1.97
S.D.					1.22	0.75	0.02
NS100	1	6.78	4.18	7.54	22.62	11.21	2.01
	2	6.33	3.93	7.06	23.32	11.53	2.02
	3	6.07	3.76	6.82	24.51	12.36	1.98
	4	5.85	3.64	6.64	26.33	13.50	1.94
	5	6.12	3.77	6.81	22.70	11.27	2.01
Avg.					23.90	11.98	1.99
S.D.					1.56	0.97	0.03
3RHA50	1	6.39	3.95	7.12	23.03	11.42	2.01
	2	7.46	4.64	8.38	24.60	12.33	1.99
	3	6.86	4.25	7.68	23.91	11.95	1.99
	4	7.62	4.69	8.46	22.28	11.02	2.01
	5	6.37	3.95	7.12	23.66	11.77	2.00
Avg.					23.49	11.70	2.00
S.D.					0.88	0.50	0.01
3RHA100	1	6.42	3.99	7.25	25.46	12.93	1.96
	2	5.52	3.43	6.16	23.44	11.59	2.02
	3	6.22	3.86	6.95	23.62	11.74	2.01
	4	6.16	3.83	6.95	25.32	12.82	1.97
	5	6.05	3.75	6.70	22.03	10.74	2.04
Avg.					23.98	11.97	2.00
S.D.					1.43	0.91	0.03

1000 °C							
Formula	Sample #	D (g)	S (g)	W (g)	A.P. (%)	W.A. (%)	B.D. (g/cm ³)
6RHA50	1	6.43	3.98	7.28	25.76	13.22	1.94
	2	7.13	4.39	8.06	25.34	13.04	1.94
	3	5.60	3.45	6.31	24.83	12.68	1.95
	4	5.97	3.68	6.73	24.92	12.73	1.95
	5	5.94	3.67	6.71	25.33	12.96	1.95
Avg.					25.23	12.93	1.95
S.D.					0.37	0.22	0.01
6RHA100	1	6.62	4.06	7.48	25.15	12.99	1.93
	2	6.74	4.16	7.59	24.78	12.61	1.96
	3	6.79	4.16	7.58	23.10	11.63	1.98
	4	6.41	3.95	7.23	25.00	12.79	1.95
	5	6.62	4.07	7.43	24.11	12.24	1.96
Avg.					24.43	12.45	1.96
S.D.					0.84	0.54	0.02
9RHA50	1	7.01	4.31	7.99	26.63	13.98	1.90
	2	6.76	4.16	7.69	26.35	13.76	1.91
	3	6.91	4.25	7.91	27.32	14.47	1.88
	4	6.25	3.83	7.13	26.67	14.08	1.89
	5	6.29	3.88	7.23	28.06	14.94	1.87
Avg.					27.00	14.25	1.89
S.D.					0.69	0.47	0.01
9RHA100	1	6.46	3.96	7.32	25.60	13.31	1.92
	2	6.34	3.89	7.21	26.20	13.72	1.90
	3	6.78	4.15	7.69	25.71	13.42	1.91
	4	6.32	3.88	7.21	26.73	14.08	1.89
	5	5.97	3.67	6.80	26.52	13.90	1.90
Avg.					26.15	13.69	1.90
S.D.					0.49	0.32	0.01

Table C-4 Experimental data of bulk density and water absorption of fired bodies at
1050 °C

1050 °C							
Formula	Sample #	D (g)	S (g)	W (g)	A.P. (%)	W.A. (%)	B.D. (g/cm ³)
NC	1	7.06	4.34	7.50	13.92	6.23	2.23
	2	7.04	4.29	7.38	11.00	4.83	2.27
	3	7.73	4.75	8.19	13.37	5.95	2.24
	4	7.07	4.31	7.39	10.39	4.53	2.29
	5	8.04	4.89	8.43	11.02	4.85	2.26
Avg.					11.94	5.28	2.26
S.D.					1.59	0.76	0.02
NF	1	7.49	4.62	8.04	16.08	7.34	2.18
	2	7.20	4.42	7.69	14.98	6.81	2.19
	3	6.66	4.09	7.15	16.01	7.36	2.17
	4	6.83	4.25	7.45	19.38	9.08	2.13
	5	6.62	4.09	7.16	17.59	8.16	2.15
Avg.					16.81	7.75	2.16
S.D.					1.71	0.89	0.03
NS50	1	7.07	4.29	7.68	17.99	8.63	2.08
	2	7.14	4.33	7.79	18.79	9.10	2.06
	3	6.92	4.21	7.54	18.62	8.96	2.07
	4	6.64	4.01	7.21	17.81	8.58	2.07
	5	6.83	4.14	7.39	17.23	8.20	2.09
Avg.					18.09	8.69	2.07
S.D.					0.63	0.35	0.01
NS100	1	7.47	4.44	8.05	16.07	7.76	2.06
	2	6.81	4.18	7.42	18.83	8.96	2.10
	3	6.42	3.93	7.02	19.42	9.35	2.07
	4	6.82	4.17	7.43	18.71	8.94	2.09
	5	6.24	3.83	6.81	19.13	9.13	2.09
Avg.					18.43	8.83	2.08
S.D.					1.35	0.62	0.01
3RHA50	1	7.35	4.51	8.02	19.09	9.12	2.09
	2	6.98	4.27	7.58	18.13	8.60	2.10
	3	6.92	4.26	7.59	20.12	9.68	2.07
	4	7.04	4.32	7.66	18.56	8.81	2.10
	5	7.57	4.64	8.24	18.61	8.85	2.10
Avg.					18.90	9.01	2.09
S.D.					0.76	0.42	0.01
3RHA100	1	6.76	4.14	7.34	18.13	8.58	2.11
	2	6.28	3.85	6.82	18.18	8.60	2.11
	3	6.59	4.04	7.21	19.56	9.41	2.07
	4	5.98	3.65	6.49	17.96	8.53	2.10
	5	7.02	4.31	7.68	19.58	9.40	2.08
Avg.					18.68	8.90	2.09
S.D.					0.82	0.46	0.02

1050 -C							
Formula	Sample #	D (g)	S (g)	W (g)	A.P. (%)	W.A. (%)	B.D. (g/cm ³)
6RHA50	1	6.82	4.19	7.57	22.19	11.00	2.01
	2	6.44	3.96	7.14	22.01	10.87	2.02
	3	6.79	4.17	7.54	22.26	11.05	2.01
	4	5.87	3.62	6.52	22.41	11.07	2.02
	5	6.52	3.99	7.19	20.94	10.28	2.03
Avg.					21.96	10.85	2.02
S.D.					0.59	0.33	0.01
6RHA100	1	6.83	4.13	7.51	20.12	9.96	2.01
	2	6.39	3.89	7.03	20.38	10.02	2.03
	3	6.44	3.94	7.13	21.63	10.71	2.01
	4	6.83	4.18	7.53	20.90	10.25	2.03
	5	6.67	4.08	7.37	21.28	10.49	2.02
Avg.					20.86	10.29	2.02
S.D.					0.62	0.32	0.01
9RHA50	1	6.92	4.24	7.81	24.93	12.86	1.93
	2	6.99	4.26	7.83	23.53	12.02	1.95
	3	6.39	3.91	7.17	23.93	12.21	1.95
	4	7.14	4.36	8.05	24.66	12.75	1.93
	5	7.22	4.42	8.10	23.91	12.19	1.96
Avg.					24.19	12.40	1.94
S.D.					0.58	0.37	0.01
9RHA100	1	6.25	3.76	6.92	21.20	10.72	1.97
	2	6.88	4.19	7.69	23.14	11.77	1.96
	3	6.82	4.15	7.64	23.50	12.02	1.95
	4	6.07	3.70	6.79	23.30	11.86	1.96
	5	7.35	4.48	8.19	22.64	11.43	1.97
Avg.					22.76	11.56	1.96
S.D.					0.92	0.52	0.01

Table C-5 Experimental data of bulk density and water absorption of fired bodies at
1100 °C

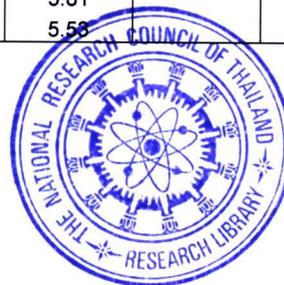
1100 °C							
Formula	Sample #	D (g)	S (g)	W (g)	A.P. (%)	W.A. (%)	B.D. (g/cm ³)
NC	1	6.49	3.91	6.67	6.52	2.77	2.34
	2	6.32	3.81	6.53	7.72	3.32	2.32
	3	6.28	3.79	6.50	8.12	3.50	2.31
	4	6.29	3.81	6.56	9.82	4.29	2.28
	5	7.24	4.36	7.44	6.49	2.76	2.34
Avg.					7.73	3.33	2.32
S.D.					1.37	0.63	0.03
NF	1	7.33	4.46	7.73	12.23	5.46	2.23
	2	6.92	4.19	7.27	11.36	5.06	2.24
	3	6.73	4.09	7.12	12.87	5.79	2.21
	4	6.73	4.12	7.13	13.29	5.94	2.23
	5	6.13	3.76	6.52	14.13	6.36	2.21
Avg.					12.78	5.72	2.23
S.D.					1.05	0.49	0.01
NS50	1	6.56	3.96	7.06	16.13	7.62	2.11
	2	7.31	4.38	7.80	14.33	6.70	2.13
	3	7.20	4.31	7.74	15.74	7.50	2.09
	4	6.55	3.95	7.02	15.31	7.18	2.13
	5	6.71	4.04	7.19	15.24	7.15	2.12
Avg.					15.35	7.23	2.12
S.D.					0.67	0.36	0.02
NS100	1	6.34	3.78	6.74	13.51	6.31	2.14
	2	6.89	4.13	7.36	14.55	6.82	2.13
	3	7.41	4.44	7.89	13.91	6.48	2.14
	4	7.88	4.73	8.43	14.86	6.98	2.12
	5	6.52	3.89	6.95	14.05	6.60	2.12
Avg.					14.18	6.64	2.13
S.D.					0.53	0.27	0.01
3RHA50	1	6.88	4.17	7.36	15.05	6.98	2.15
	2	6.74	4.07	7.19	14.42	6.68	2.15
	3	7.99	4.84	8.53	14.63	6.76	2.16
	4	7.47	4.54	8.01	15.56	7.23	2.15
	5	6.27	3.82	6.75	16.38	7.66	2.13
Avg.					15.21	7.06	2.15
S.D.					0.79	0.40	0.01
3RHA100	1	7.68	4.67	8.28	16.62	7.81	2.12
	2	6.91	4.18	7.36	14.15	6.51	2.17
	3	7.32	4.44	7.81	14.54	6.69	2.17
	4	6.92	4.19	7.39	14.69	6.79	2.16
	5	6.89	4.15	7.32	13.56	6.24	2.17
Avg.					14.71	6.81	2.15
S.D.					1.15	0.60	0.02

1100 °C							
Formula	Sample #	D (g)	S (g)	W (g)	A.P. (%)	W.A. (%)	B.D. (g/cm ³)
6RHA50	1	6.37	3.81	6.89	16.88	8.16	2.06
	2	6.30	3.79	6.88	18.77	9.21	2.03
	3	6.67	4.01	7.25	17.90	8.70	2.05
	4	6.12	3.66	6.64	17.45	8.50	2.05
	5	6.86	4.13	7.49	18.75	9.18	2.04
	Avg.					17.95	8.75
S.D.					0.82	0.45	0.01
6RHA100	1	7.43	4.49	8.05	17.42	8.34	2.08
	2	6.45	3.90	6.98	17.21	8.22	2.09
	3	6.98	4.22	7.56	17.37	8.31	2.08
	4	6.34	3.84	6.90	18.30	8.83	2.07
	5	6.38	3.87	6.94	18.24	8.78	2.07
	Avg.					17.71	8.50
S.D.					0.52	0.29	0.01
9RHA50	1	6.48	3.91	7.15	20.68	10.34	1.99
	2	6.88	4.18	7.61	21.28	10.61	2.00
	3	6.27	3.81	6.95	21.66	10.85	1.99
	4	6.69	4.06	7.41	21.49	10.76	1.99
	5	6.64	4.03	7.35	21.39	10.69	1.99
	Avg.					21.30	10.65
S.D.					0.37	0.19	0.00
9RHA100	1	6.51	3.96	7.19	21.05	10.45	2.01
	2	6.70	4.07	7.41	21.26	10.60	2.00
	3	6.73	4.08	7.47	21.83	11.00	1.98
	4	7.19	4.37	8.01	22.53	11.40	1.97
	5	6.95	4.19	7.65	20.23	10.07	2.00
	Avg.					21.38	10.70
S.D.					0.86	0.51	0.02

Appendix D

Table D Experimental data of modulus of rupture of green bodies

Formula	No.	D (mm)	P (N)	M.O.R. (MPa)	Avg. (MPa)	S.D.
NC	1	9.05	28.04	7.71	5.57	1.53
	2	9.05	16.98	4.67		
	3	9.05	19.84	5.46		
	4	9.00	13.35	3.73		
	5	9.05	28.23	7.76		
	6	9.05	17.93	4.93		
	7	9.05	12.40	3.41		
	8	9.05	24.99	6.87		
	9	9.05	18.12	4.98		
	10	9.05	22.51	6.19		
NF	1	9.05	16.21	4.46	4.46	1.06
	2	9.05	14.31	3.93		
	3	9.10	13.54	3.66		
	4	9.10	14.69	3.97		
	5	9.05	-	-		
	6	9.10	18.88	5.11		
	7	9.05	24.41	6.71		
	8	9.05	19.07	5.24		
	9	9.05	12.78	3.51		
	10	9.05	12.78	3.51		
NS50	1	9.10	24.22	6.55	5.84	1.25
	2	9.05	15.26	4.20		
	3	9.05	15.83	4.35		
	4	9.05	22.51	6.19		
	5	9.05	20.98	5.77		
	6	9.10	16.40	4.44		
	7	9.10	20.79	5.62		
	8	9.10	28.42	7.69		
	9	9.05	22.13	6.09		
	10	9.05	27.47	7.55		
NS100	1	9.05	16.98	4.67	5.42	1.13
	2	9.05	24.99	6.87		
	3	9.10	15.07	4.08		
	4	9.10	16.59	4.49		
	5	9.10	15.07	4.08		
	6	9.10	23.65	6.40		
	7	9.10	24.80	6.71		
	8	9.10	23.84	6.45		
	9	9.10	17.17	4.64		
	10	9.05	21.17	5.82		
3RHA50	1	9.10	18.50	5.00	5.03	0.85
	2	9.15	16.02	4.26		
	3	9.15	-	-		
	4	9.15	23.84	6.34		
	5	9.15	20.79	5.53		
	6	9.15	20.22	5.38		
	7	9.15	14.88	3.96		
	8	9.15	20.60	5.48		
	9	9.15	14.31	3.81		
	10	9.15	20.79	5.58		



Formula	No.	D (mm)	P (N)	M.O.R. (MPa)	Avg. (MPa)	S.D.
3RHA100	1	9.15	24.41	6.49	4.29	1.03
	2	9.15	13.92	3.70		
	3	9.15	17.17	4.57		
	4	9.15	13.54	3.60		
	5	9.10	18.50	5.00		
	6	9.10	14.31	3.87		
	7	9.15	12.21	3.25		
	8	9.15	17.17	4.57		
	9	9.15	11.25	2.99		
	10	9.15	18.12	4.82		
6RHA50	1	9.10	18.88	5.11	5.25	0.82
	2	9.15	23.08	6.14		
	3	9.15	15.64	4.16		
	4	9.15	16.02	4.26		
	5	9.15	17.17	4.57		
	6	9.15	23.27	6.19		
	7	9.15	20.03	5.33		
	8	9.15	19.07	5.07		
	9	9.10	24.22	6.55		
	10	9.10	19.07	5.16		
6RHA100	1	9.15	20.41	5.43	5.27	1.29
	2	9.15	21.36	5.68		
	3	9.15	22.32	5.94		
	4	9.15	17.93	4.77		
	5	9.15	23.08	6.14		
	6	9.15	14.11	3.75		
	7	9.15	11.63	3.09		
	8	9.15	24.99	6.65		
	9	9.10	26.13	7.07		
	10	9.15	15.64	4.16		
9RHA50	1	9.15	20.41	5.43	4.84	1.12
	2	9.15	19.84	5.28		
	3	9.15	22.51	5.99		
	4	9.20	13.16	3.44		
	5	9.20	24.60	6.44		
	6	9.20	20.60	5.39		
	7	9.20	20.22	5.29		
	8	9.20	15.83	4.14		
	9	9.20	15.26	3.99		
	10	9.20	11.63	3.04		
9RHA100	1	9.20	20.98	5.49	4.53	0.77
	2	9.20	19.65	5.14		
	3	9.20	20.98	5.49		
	4	9.25	18.69	4.81		
	5	9.20	18.88	4.94		
	6	9.20	15.26	3.99		
	7	9.20	16.59	4.34		
	8	9.20	14.31	3.75		
	9	9.20	12.21	3.20		
	10	9.20	15.83	4.14		

Appendix E

Table E-1 Experimental data of modulus of rupture of fired bodies at 900 °C

900 °C						
Formula	No.	D (mm)	P (N)	M.O.R. (MPa)	Avg. (MPa)	S.D.
NC	1	8.85	59.89	17.61	18.8	2.61
	2	8.80	70.57	21.11		
	3	8.85	64.09	18.85		
	4	8.85	-	-		
	5	8.85	73.62	21.65		
	6	8.85	69.05	20.30		
	7	8.85	46.92	13.80		
	8	8.90	55.12	15.94		
	9	8.85	70.00	20.58		
	10	8.90	68.09	19.69		
NF	1	8.95	84.30	23.97	20.5	3.32
	2	8.95	59.13	16.81		
	3	8.95	79.15	22.50		
	4	8.95	81.63	23.21		
	5	8.90	77.25	22.33		
	6	8.95	49.40	14.04		
	7	8.95	84.30	23.97		
	8	8.95	65.23	18.55		
	9	8.95	69.05	19.63		
	10	8.95	70.00	19.90		
NS50	1	8.95	70.38	20.01	21.9	2.35
	2	8.95	81.83	23.26		
	3	8.95	70.19	19.96		
	4	8.95	80.87	22.99		
	5	9.00	90.41	25.28		
	6	8.95	61.42	17.46		
	7	9.00	73.43	20.53		
	8	8.95	82.59	23.48		
	9	8.95	76.48	21.74		
	10	9.00	85.45	23.89		
NS100	1	8.90	60.84	17.59	20.8	2.60
	2	8.95	85.83	24.40		
	3	8.95	76.87	21.85		
	4	8.90	55.69	16.10		
	5	8.95	69.62	19.79		
	6	9.00	79.35	22.19		
	7	8.95	84.69	24.08		
	8	8.95	70.76	20.12		
	9	8.90	73.24	21.18		
	10	9.00	73.05	20.42		
3RHA50	1	9.05	70.00	19.25	21.0	2.95
	2	9.00	65.61	18.34		
	3	9.05	83.35	22.92		
	4	9.05	67.90	18.67		
	5	9.05	84.88	23.34		
	6	9.05	61.61	16.94		
	7	9.05	88.12	24.23		
	8	9.00	88.12	24.64		
	9	9.05	84.88	23.34		
	10	9.05	65.99	18.15		

900 °C						
Formula	No.	D (mm)	P (N)	M.O.R. (MPa)	Avg. (MPa)	S.D.
3RHA100	1	9.00	64.85	18.13	18.8	1.80
	2	9.05	67.33	18.51		
	3	9.00	64.47	18.03		
	4	9.05	65.61	18.04		
	5	9.00	60.65	16.96		
	6	9.05	76.29	20.98		
	7	9.05	73.24	20.14		
	8	9.05	75.53	20.77		
	9	9.05	57.60	15.84		
	10	9.05	76.48	21.03		
6RHA50	1	9.00	59.13	16.53	18.7	2.59
	2	9.00	75.91	21.22		
	3	9.00	66.57	18.61		
	4	9.00	54.36	15.20		
	5	9.00	61.61	17.23		
	6	9.05	71.91	19.77		
	7	9.00	73.43	20.53		
	8	9.05	65.61	18.04		
	9	9.05	85.45	23.50		
	10	9.05	58.36	16.05		
6RHA100	1	9.00	78.58	21.97	19.3	2.56
	2	9.05	67.52	18.57		
	3	9.05	59.89	16.47		
	4	9.00	65.42	18.29		
	5	9.05	61.61	16.94		
	6	9.05	77.82	21.40		
	7	9.05	80.49	22.13		
	8	9.05	55.31	15.21		
	9	9.00	75.72	21.17		
	10	9.05	77.44	21.29		
9RHA50	1	9.10	48.64	13.16	17.4	2.26
	2	9.10	72.10	19.50		
	3	9.10	64.47	17.44		
	4	9.15	70.38	18.73		
	5	9.15	68.86	18.32		
	6	9.15	71.91	19.13		
	7	9.15	58.75	15.63		
	8	9.15	71.33	18.98		
	9	9.15	69.62	18.52		
	10	9.10	52.07	14.08		
9RHA100	1	9.15	77.63	20.65	16.8	2.24
	2	9.15	64.09	17.05		
	3	9.15	57.79	15.38		
	4	9.20	62.56	16.38		
	5	9.20	67.14	17.57		
	6	9.15	53.98	14.36		
	7	9.15	65.80	17.51		
	8	9.15	75.53	20.10		
	9	9.15	55.69	14.82		
	10	9.15	53.79	14.31		

Table E-2 Experimental data of modulus of rupture of fired bodies at 950 °C

950 °C						
Formula	No.	D (mm)	P (N)	M.O.R. (MPa)	Avg. (MPa)	S.D.
NC	1	8.80	98.04	29.32	25.1	7.55
	2	8.80	104.90	31.37		
	3	8.75	59.51	18.11		
	4	8.75	93.27	28.38		
	5	8.80	65.80	19.68		
	6	8.80	74.77	22.36		
	7	8.80	65.99	19.74		
	8	8.80	43.11	12.89		
	9	8.80	112.20	33.56		
	10	8.85	121.10	35.61		
NF	1	8.90	94.60	27.35	23.6	3.34
	2	8.95	84.88	24.13		
	3	8.95	84.30	23.97		
	4	8.95	72.86	20.71		
	5	8.90	76.87	22.22		
	6	9.00	82.21	22.99		
	7	8.95	57.22	16.27		
	8	8.90	85.07	24.60		
	9	8.90	90.98	26.30		
	10	8.90	94.22	27.24		
NS50	1	8.95	98.23	27.93	23.7	2.93
	2	8.95	73.62	20.93		
	3	8.90	79.92	23.11		
	4	8.95	81.25	23.10		
	5	8.90	80.30	23.22		
	6	8.90	69.62	20.13		
	7	8.90	95.37	27.57		
	8	8.90	93.27	26.97		
	9	8.90	69.81	20.18		
	10	8.90	80.87	23.38		
NS100	1	8.85	95.75	28.16	24.2	4.17
	2	8.90	81.83	23.66		
	3	8.90	101.70	29.40		
	4	8.90	78.39	22.66		
	5	8.85	97.66	28.72		
	6	8.90	66.76	19.30		
	7	8.90	97.66	28.24		
	8	8.90	74.39	21.51		
	9	8.90	61.61	17.81		
	10	8.90	78.01	22.55		
3RHA50	1	8.95	72.86	20.71	23.2	2.38
	2	8.95	89.07	25.32		
	3	9.00	91.55	25.60		
	4	8.95	71.72	20.39		
	5	9.00	89.26	24.96		
	6	8.95	87.55	24.89		
	7	8.95	90.60	25.76		
	8	9.00	79.54	22.24		
	9	8.95	77.06	21.91		
	10	9.00	70.76	19.78		

950 °C						
Formula	No.	D (mm)	P (N)	M.O.R. (MPa)	Avg. (MPa)	S.D.
3RHA100	1	9.00	93.08	26.02	24.1	1.40
	2	9.00	82.02	22.93		
	3	9.05	85.83	23.60		
	4	9.00	90.98	25.44		
	5	9.00	90.60	25.33		
	6	9.05	86.40	23.76		
	7	9.00	76.87	21.49		
	8	9.00	83.16	23.25		
	9	9.00	90.22	25.22		
	10	9.00	85.07	23.78		
6RHA50	1	9.00	76.10	21.28	20.2	2.50
	2	9.00	79.15	22.13		
	3	9.00	78.58	21.97		
	4	9.05	61.61	16.94		
	5	9.00	68.86	19.25		
	6	9.05	71.53	19.67		
	7	9.00	61.04	17.07		
	8	9.05	71.33	19.61		
	9	9.00	90.22	25.22		
	10	9.00	68.28	19.09		
6RHA100	1	9.00	80.30	22.45	19.8	2.82
	2	9.00	53.79	15.04		
	3	8.95	65.61	18.65		
	4	9.00	83.54	23.36		
	5	8.95	68.09	19.36		
	6	9.00	63.51	17.76		
	7	9.00	86.78	24.26		
	8	8.95	68.09	19.36		
	9	8.95	67.71	19.25		
	10	9.00	64.28	17.97		
9RHA50	1	9.05	56.08	15.42	17.0	1.88
	2	9.05	59.89	16.47		
	3	9.05	66.95	18.41		
	4	9.05	62.75	17.26		
	5	9.10	57.03	15.43		
	6	9.10	67.52	18.26		
	7	9.10	53.79	14.55		
	8	9.10	77.82	21.05		
	9	9.10	63.13	17.08		
	10	9.10	60.46	16.35		
9RHA100	1	9.05	68.28	18.78	18.1	1.65
	2	9.10	65.04	17.59		
	3	9.10	67.90	18.37		
	4	9.10	74.58	20.17		
	5	9.10	70.95	19.19		
	6	9.10	66.57	18.01		
	7	9.05	51.88	14.27		
	8	9.10	64.28	17.39		
	9	9.10	73.43	19.86		
	10	9.05	64.85	17.83		

Table E-3 Experimental data of modulus of rupture of fired bodies at 1000 °C

1000 °C						
Formula	No.	D (mm)	P (N)	M.O.R. (MPa)	Avg. (MPa)	S.D.
NC	1	8.60	98.42	31.54	31.8	6.18
	2	8.65	130.70	41.16		
	3	8.60	112.70	36.11		
	4	8.60	82.21	26.34		
	5	8.60	125.50	40.22		
	6	8.65	84.69	26.67		
	7	8.60	81.25	26.04		
	8	8.60	84.30	27.01		
	9	8.60	82.02	26.28		
	10	8.60	114.40	36.66		
NF	1	8.75	74.77	22.75	22.8	3.38
	2	8.75	74.39	22.63		
	3	8.75	88.50	26.93		
	4	8.70	73.62	22.79		
	5	8.70	77.06	23.85		
	6	8.70	88.69	27.45		
	7	8.70	54.36	16.83		
	8	8.70	82.02	25.39		
	9	8.75	61.04	18.57		
	10	8.70	68.28	21.13		
NS50	1	8.75	78.20	23.79	24.8	3.88
	2	8.70	61.23	18.95		
	3	8.75	93.27	28.38		
	4	8.70	100.10	30.98		
	5	8.75	84.88	25.82		
	6	8.70	81.25	25.15		
	7	8.70	70.76	21.90		
	8	8.70	77.25	23.91		
	9	8.70	64.47	19.95		
	10	8.75	94.41	28.72		
NS100	1	8.70	45.97	14.23	23.7	5.03
	2	8.70	85.83	26.57		
	3	8.75	88.88	27.04		
	4	8.70	69.81	21.61		
	5	8.75	73.62	22.40		
	6	8.75	106.00	32.25		
	7	8.70	76.10	23.55		
	8	8.70	90.22	27.93		
	9	8.70	64.85	20.07		
	10	8.70	67.33	20.84		
3RHA50	1	8.85	64.47	18.96	23.1	3.13
	2	8.85	71.53	21.03		
	3	8.80	79.73	23.85		
	4	8.80	81.06	24.24		
	5	8.85	73.81	21.70		
	6	8.85	66.95	19.69		
	7	8.80	90.03	26.93		
	8	8.85	93.27	27.43		
	9	8.80	68.86	20.60		
	10	8.85	90.03	26.47		

1000 °C						
Formula	No.	D (mm)	P (N)	M.O.R. (MPa)	Avg. (MPa)	S.D.
3RHA100	1	8.75	79.15	24.08	22.6	2.79
	2	8.80	96.89	28.98		
	3	8.80	73.24	21.91		
	4	8.85	77.82	22.88		
	5	8.80	70.76	21.16		
	6	8.85	64.66	19.01		
	7	8.80	69.81	20.88		
	8	8.80	76.87	22.99		
	9	8.80	79.35	23.73		
	10	8.80	66.57	19.91		
6RHA50	1	8.85	57.41	16.88	19.9	2.24
	2	8.85	67.33	19.80		
	3	8.85	65.80	19.35		
	4	8.85	84.11	24.73		
	5	8.85	71.72	21.09		
	6	8.85	71.72	21.09		
	7	8.85	67.90	19.97		
	8	8.85	69.05	20.30		
	9	8.85	63.32	18.62		
	10	8.85	58.17	17.10		
6RHA100	1	8.90	83.35	24.10	22.0	2.75
	2	8.85	70.76	20.81		
	3	8.85	57.41	16.88		
	4	8.85	79.35	23.33		
	5	8.85	66.38	19.52		
	6	8.85	72.10	21.20		
	7	8.85	69.81	20.53		
	8	8.85	80.30	23.61		
	9	8.85	82.02	24.12		
	10	8.80	87.74	26.24		
9RHA50	1	9.00	73.09	20.44	19.0	1.78
	2	9.00	82.40	23.04		
	3	9.00	67.14	18.77		
	4	9.00	67.33	18.82		
	5	9.00	71.14	19.89		
	6	9.00	62.94	17.60		
	7	8.95	62.56	17.79		
	8	9.00	60.65	16.96		
	9	9.00	64.28	17.97		
	10	9.00	65.42	18.29		
9RHA100	1	8.95	61.42	17.46	18.9	1.91
	2	8.95	73.43	20.88		
	3	9.00	63.90	17.87		
	4	9.00	75.53	21.12		
	5	9.00	75.53	21.12		
	6	9.00	69.62	19.47		
	7	8.95	54.55	15.51		
	8	9.00	63.51	17.76		
	9	9.00	72.29	20.21		
	10	9.00	63.90	17.87		

Table E-4 Experimental data of modulus of rupture of fired mixed bodies at 1050 °C

1050 °C						
Formula	No.	D (mm)	P (N)	M.O.R. (MPa)	Avg. (MPa)	S.D.
NC	1	8.45	73.24	24.74	31.0	7.77
	2	8.40	95.75	32.93		
	3	8.40	51.12	17.58		
	4	8.40	113.70	39.10		
	5	8.45	120.70	40.77		
	6	8.45	60.46	20.42		
	7	8.40	99.95	34.37		
	8	8.45	105.30	35.57		
	9	8.40	85.83	29.52		
	10	8.35	98.61	34.52		
NF	1	8.60	62.37	19.99	22.5	2.67
	2	8.60	71.14	22.80		
	3	8.55	80.87	26.37		
	4	8.60	62.18	19.93		
	5	8.60	63.32	20.29		
	6	8.60	71.91	23.04		
	7	8.65	81.25	25.59		
	8	8.60	64.85	20.78		
	9	8.55	79.92	26.06		
	10	8.65	63.90	20.12		
NS50	1	8.55	96.70	31.53	30.1	3.67
	2	8.55	101.10	32.97		
	3	8.60	102.40	32.81		
	4	8.60	78.96	25.30		
	5	8.60	84.88	27.20		
	6	8.60	101.70	32.59		
	7	8.60	91.17	29.22		
	8	8.60	111.60	35.76		
	9	8.60	92.12	29.52		
	10	8.60	76.10	24.39		
NS100	1	8.60	76.29	24.45	28.4	4.84
	2	-	-	-		
	3	8.60	104.00	33.33		
	4	8.65	100.10	31.52		
	5	8.60	89.65	28.73		
	6	8.60	75.91	24.33		
	7	8.60	101.30	32.46		
	8	8.60	60.27	19.31		
	9	8.60	87.17	27.93		
	10	8.60	103.20	33.07		
3RHA50	1	8.75	93.08	28.32	22.4	4.63
	2	8.75	85.26	25.94		
	3	8.75	60.46	18.39		
	4	8.70	58.36	18.06		
	5	8.70	91.74	28.40		
	6	8.70	57.60	17.83		
	7	8.75	69.24	21.07		
	8	8.75	70.00	21.30		
	9	8.70	87.93	27.22		
	10	8.75	56.46	17.18		

1050 °C						
Formula	No.	D (mm)	P (N)	M.O.R. (MPa)	Avg. (MPa)	S.D.
3RHA100	1	8.70	57.79	17.89	23.6	3.83
	2	8.70	79.92	24.74		
	3	8.60	56.65	18.15		
	4	8.70	84.30	26.09		
	5	8.70	90.98	28.16		
	6	8.70	84.11	26.03		
	7	8.70	92.12	28.51		
	8	8.70	66.95	20.72		
	9	8.70	70.41	21.79		
	10	8.70	75.72	23.44		
6RHA50	1	8.75	76.29	23.21	22.5	3.66
	2	8.75	57.98	17.64		
	3	8.70	51.31	15.88		
	4	8.75	74.20	22.58		
	5	8.75	76.87	23.39		
	6	8.75	84.69	25.77		
	7	8.70	83.92	25.98		
	8	8.75	64.47	19.61		
	9	8.75	80.68	24.55		
	10	8.80	88.88	26.58		
6RHA100	1	8.75	59.70	18.16	21.7	2.23
	2	8.75	75.91	23.10		
	3	8.80	76.29	22.82		
	4	8.75	60.65	18.45		
	5	8.70	70.57	21.84		
	6	8.75	63.71	19.38		
	7	8.75	78.20	23.79		
	8	8.80	77.63	23.22		
	9	8.75	74.39	22.63		
	10	8.75	78.96	24.02		
9RHA50	1	8.85	58.17	17.10	17.5	1.47
	2	8.90	65.80	19.02		
	3	8.90	57.79	16.71		
	4	8.90	67.52	19.52		
	5	8.90	56.65	16.38		
	6	8.85	62.94	18.51		
	7	8.85	49.21	14.47		
	8	8.85	58.56	17.22		
	9	8.85	62.37	18.34		
	10	8.85	60.46	17.78		
9RHA100	1	8.90	72.67	21.01	19.4	3.50
	2	8.85	61.23	18.00		
	3	8.85	75.91	22.32		
	4	8.85	56.08	16.49		
	5	8.85	49.40	14.53		
	6	8.80	88.88	26.58		
	7	8.85	68.09	20.02		
	8	8.85	69.43	20.42		
	9	8.85	54.17	15.93		
	10	8.85	65.04	19.12		

Table E-5 Experimental data of modulus of rupture of fired mixed bodies at 1100 °C

1100 °C						
Formula	No.	D (mm)	P (N)	M.O.R. (MPa)	Avg. (MPa)	S.D.
NC	1	8.35	144.60	50.62	36.1	12.31
	2	8.40	125.50	43.16		
	3	8.35	43.11	15.09		
	4	8.35	120.20	42.08		
	5	8.30	112.70	40.17		
	6	8.35	73.43	25.71		
	7	8.35	123.40	43.20		
	8	8.40	49.21	16.92		
	9	8.35	107.20	37.53		
	10	8.35	128.90	45.13		
NF	1	8.50	87.36	28.99	27.1	5.71
	2	8.50	94.03	31.21		
	3	8.50	46.16	15.32		
	4	8.50	75.15	24.94		
	5	8.50	70.00	23.23		
	6	8.55	75.91	24.75		
	7	8.50	93.84	31.14		
	8	8.55	75.53	24.63		
	9	8.50	94.03	31.21		
	10	8.50	106.80	35.45		
NS50	1	8.50	113.30	37.60	34.7	4.57
	2	8.45	100.30	33.88		
	3	8.55	123.00	40.11		
	4	8.50	83.16	27.60		
	5	8.45	115.80	39.12		
	6	8.45	103.80	35.07		
	7	8.45	108.30	36.59		
	8	8.50	104.00	34.52		
	9	8.50	78.96	26.21		
	10	8.50	110.40	36.64		
NS100	1	8.45	116.30	39.29	32.3	6.05
	2	8.45	85.45	28.87		
	3	8.50	113.70	37.74		
	4	8.50	80.49	26.71		
	5	8.45	87.36	29.51		
	6	8.45	88.69	29.96		
	7	8.50	81.44	27.03		
	8	8.45	97.66	32.99		
	9	8.50	81.83	27.16		
	10	8.45	130.70	44.15		
3RHA50	1	8.65	84.30	26.55	26.4	2.72
	2	8.65	80.11	25.23		
	3	8.65	97.27	30.63		
	4	8.65	69.05	21.75		
	5	8.65	92.89	29.25		
	6	8.70	80.87	25.03		
	7	8.65	81.83	25.77		
	8	8.65	90.60	28.53		
	9	8.65	87.17	27.45		
	10	8.65	74.01	23.31		

1100 °C						
Formula	No.	D (mm)	P (N)	M.O.R. (MPa)	Avg. (MPa)	S.D.
3RHA100	1	8.60	104.10	33.36	29.2	5.06
	2	8.60	109.50	35.09		
	3	8.60	92.12	29.52		
	4	8.60	75.53	24.20		
	5	8.65	68.28	21.50		
	6	8.60	101.10	32.40		
	7	8.60	95.56	30.62		
	8	8.60	70.19	22.49		
	9	8.65	111.60	35.15		
	10	8.60	87.17	27.93		
6RHA50	1	8.70	82.40	25.50	23.5	2.69
	2	8.70	87.93	27.22		
	3	8.70	87.55	27.10		
	4	8.70	69.43	21.49		
	5	8.70	66.18	20.48		
	6	8.60	71.33	22.86		
	7	8.70	63.32	19.60		
	8	8.70	71.91	22.26		
	9	8.70	75.15	23.26		
	10	8.70	82.21	25.45		
6RHA100	1	8.65	75.34	23.73	24.5	2.95
	2	8.70	67.14	20.78		
	3	8.70	68.47	21.19		
	4	8.70	90.41	27.98		
	5	8.70	90.03	27.87		
	6	8.70	84.88	26.27		
	7	8.65	86.02	27.09		
	8	8.65	79.73	25.11		
	9	8.70	79.54	24.62		
	10	8.70	65.04	20.13		
9RHA50	1	8.80	74.96	22.42	22.3	2.85
	2	8.80	71.14	21.28		
	3	8.85	76.87	22.60		
	4	8.80	63.32	18.94		
	5	8.80	86.98	26.01		
	6	8.80	70.19	20.99		
	7	8.80	91.74	27.44		
	8	8.80	79.54	23.79		
	9	8.80	69.81	20.88		
	10	8.80	61.80	18.48		
9RHA100	1	8.75	78.01	23.73	22.5	3.57
	2	8.80	74.20	22.19		
	3	8.80	79.73	23.85		
	4	8.80	59.89	17.91		
	5	8.80	93.84	28.07		
	6	8.80	60.65	18.14		
	7	8.80	86.40	25.84		
	8	8.80	81.63	24.41		
	9	8.75	77.25	23.50		
	10	8.80	58.75	17.57		

Biography

Mr. Prapun Aungatichart was born in 1961, he received his Bachelor's Degree of Engineering in Industrial Engineering from Chulalongkorn University in 1985 and received his Master's Degree of Science in Industrial Technology from Eastern Michigan University, U.S.A., in 1987.

He began to study for his Master's Degree of Science in Ceramic Technology, Department of Materials Science, Chulalongkorn University, in October 2002 and completed his program in December 2004.



