

DATA BOOKLET

to accompany:

**Compton, M.S. 1989: *Morphology and geochemistry of glauconite from the Te Kuiti Group, South Auckland region, New Zealand.*
Unpublished thesis, University of Waikato, Hamilton, New Zealand**

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Section D1

ACID DISSOLUTION DATA

The analyses were made using atomic adsorption spectroscopy. Description of sample methodology and calculation of the corrected concentration calculation may be found in Appendix I of Compton (1989).

Sample MC44 - Ca Data			Sample MC44 - Fe Data			Sample MC44 - K Data		
Time (mins)	Concentration measured (ppm)	Concentration corrected (ppm)	Time (mins)	Concentration measured (ppm)	Concentration corrected (ppm)	Time (mins)	Concentration measured (ppm)	Concentration corrected (ppm)
0	1.04	1.04	0	0.50	0.50	0	0.80	0.80
1	3.81	3.78	1	1.00	1.00	2	2.72	2.70
2	6.83	6.74	2	1.01	1.00	3	3.44	3.41
3	7.14	7.04	3	1.03	1.02	4	3.95	3.90
4	7.36	7.25	4	1.74	1.71	5	2.91	2.90
5	8.14	7.99	5	1.50	1.48	6	4.17	4.10
6	8.31	8.15	6	1.49	1.47	7	2.82	2.83
7	8.48	8.31	7	1.26	1.25	8	2.27	2.32
8	8.88	8.68	8	1.13	1.13	9	2.69	2.71
9	8.26	8.12	9	1.43	1.41	10	2.29	2.34
10	8.91	8.70	10	1.31	1.30	11	3.27	3.22
11	8.78	8.59	11	1.73	1.67	12	2.29	2.35
12	8.43	8.28	12	1.33	1.32	13	2.23	2.30
13	8.12	8.01	13	1.62	1.57	14	2.45	2.49
14	8.64	8.46	14	1.50	1.47	15	2.14	2.22
15	8.84	8.63	15	1.50	1.47	16	2.58	2.60
16	9.00	8.76	16	1.78	1.71	17	2.62	2.63
17	8.78	8.58	17	1.64	1.59	18	2.24	2.32
18	8.62	8.45	18	1.77	1.70	19	2.31	2.37
19	9.23	8.94	19	1.76	1.69	20	2.44	2.48
20	8.59	8.43	20	1.75	1.68	22	3.04	2.96
22	8.57	8.41	22	2.14	1.99	24	2.55	2.57
24	8.53	8.38	24	2.26	2.08	26	2.47	2.51
26	8.36	8.25	26	2.23	2.06	28	2.40	2.45
28	8.84	8.61	28	2.21	2.04	30	2.27	2.36
30	8.84	8.61	30	2.42	2.20			

Sample MC44 - Mg Data			Sample MC44 - Na Data		
Time (mins)	Concentration measured (ppm)	Concentration corrected (ppm)	Time (mins)	Concentration measured (ppm)	Concentration corrected (ppm)
0	0.20	0.20	0	4.73	4.73
1	0.68	0.67	1	5.52	5.51
2	0.93	0.92	2	5.40	5.39
3	1.00	0.99	3	5.38	5.38
4	0.97	0.96	4	5.44	5.43
5	1.19	1.17	5	5.37	5.37
6	1.24	1.22	6	5.14	5.15
7	1.21	1.19	7	4.91	4.94
8	1.27	1.24	8	4.62	4.67
9	1.31	1.28	9	4.88	4.91
10	1.34	1.31	10	4.62	4.67
11	1.40	1.36	11	4.86	4.89
12	1.31	1.28	12	4.53	4.60
13	1.34	1.31	13	4.58	4.64
14	1.35	1.31	14	4.70	4.74
15	1.33	1.30	15	4.36	4.45
16	1.40	1.36	16	4.63	4.68
17	1.35	1.32	17	4.61	4.66
18	1.34	1.31	18	4.31	4.42
19	1.36	1.32	19	4.21	4.34
20	1.33	1.30	20	4.47	4.54
22	1.41	1.36	22	4.71	4.73
24	1.33	1.30	24	4.46	4.54
26	1.33	1.30	26	4.66	4.69
28	1.34	1.31	28	4.45	4.53
30	1.37	1.33	30	4.39	4.49

Section D2

BINOCULAR MORPHOLOGY DATA

The distance (km) value represents the approximate radial distance in km from the intersection of the panel diagram projection line and the northern boundary of the field area. The percentage composition values were calculated based on a 200 grain sample size per sample.

Sample	Field N°	Bed	Distance(km)†	% lobate	% ovoid
MC3	S42	E	18	4	58
MC6	S40	E	22	4	59
MC7	S41	E	24	3	64
MC11a	S38B	E	43	7	67
MC11b	S38C	E	43	3	57
MC14	S31	E	72	<1	37
MC10a	7153Wh	Wh	29	5	75
MC25a	S8	Wh	107	1	39
MC25b	S9	Wh	107	2	44
MC31a	S15	Wh	115	3	40
MC31b	S16	Wh	115	7	40
MC31c	S17	Wh	115	3	58
MC31d	S18	Wh	115	4	50
MC38a	S21	Wh	127	2	36
MC38b	S22	Wh	127	5	42
MC5A	S39A	Ao	21	6	55
MC15	DFS3	Ao	95	8	54
MC18	DFS12	Ao	96	7	67
MC20	S6	Ao	101	2	77
MC21	S32	Ao	102	14	46
MC23	S4B	Ao	104	16	53
MC24	S5	Ao	105	<1	42
MC26	S2	Ao	108	11	30
MC28	S.A.	Ao	109	3	32
MC35	S26	Ao	124	5	45
MC36a	S23	Ao	124	5	51
MC36b	S24	Ao	124	11	43
MC39b	S34B	Ao	140	<1	43
MC44	A.T.	Ao	151	<1	20
MC45	Bex.T	Ao	153	2	61
MC19a	S3B	Or	100	9	47
MC19b	S3C	Or	100	4	52
MC22	DFS11B	Or	120	3	27
MC29	S.T.	Or	112	57	20
MC30	S14/13	Or	114	53	19
MC32	S30	Or	116	3	36
MC37	CN4	Or	126	5	58
MC40	S35	Or	140	4	50
MC41	S36	Or	140	17	59
MC17	S29	Wt	95	2	59
MC27e	C32Wt.Sst.	Wt	108	9	33

Sample	% tabular	% capsule	% vermicular	% casts	% fragmentary
MC3	1	1	0	0	35
MC6	5	3	<1	1	24
MC7	4	3	0	<1	25
MC11a	4	2	0	0	18
MC11b	4	2	0	0	32
MC14	<1	<1	0	<1	36
MC10a	2	1	1	0	15
MC25a	<1	<1	0	19	26
MC25b	2	<1	0	5	30
MC31a	1	1	0	2	47
MC31b	4	1	0	14	23
MC31c	2	4	0	5	21
MC31d	3	1	0	10	19
MC38a	4	2	0	7	41
MC38b	7	2	0	6	30
MC5A	2	3	0	4	24
MC15	2	2	0	8	23
MC18	2	4	<1	<1	18
MC20	1	1	0	<1	18
MC21	8	2	2	2	23
MC23	7	1	0	7	14
MC24	3	<1	<1	<1	51
MC26	1	<1	2	0	55
MC28	<1	0	1	<1	61
MC35	2	2	<1	3	35
MC36a	3	<1	0	1	29
MC36b	3	2	0	2	33
MC39b	0	2	<1	4	46
MC44	1	0	1	<1	75
MC45	<1	<1	<1	<1	35
MC19a	2	2	4	<1	35
MC19b	3	0	12	1	24
MC22	<1	<1	0	29	28
MC29	2	<1	3	<1	10
MC30	3	<1	<1	4	12
MC32	2	<1	0	5	38
MC37	<1	2	0	9	20
MC40	2	0	0	<1	41
MC41	5	3	<1	1	12
MC17	<1	0	<1	<1	37
MC27e	0	2	0	<1	50

Sample	% composite	% cauliflower	% light green	% med. green	% dark green
MC3	<1	1	9	35	56
MC6	2	2	8	53	39
MC7	<1	<1	15	44	41
MC11a	<1	0	10	36	54
MC11b	<1	<1	8	26	66
MC14	3	22	25	49	26
MC10a	1	0	3	72	25
MC25a	<1	13	23	63	14
MC25b	<1	17	35	55	10
MC31a	1	4	12	47	41
MC31b	3	8	24	56	20
MC31c	3	4	29	59	12
MC31d	6	6	40	51	9
MC38a	1	7	11	47	42
MC38b	1	6	25	55	20
MC5A	1	4	26	45	29
MC15	1	1	12	22	66
MC18	0	<1	4	25	71
MC20	0	<1	3	25	72
MC21	3	0	11	72	17
MC23	1	0	12	65	23
MC24	<1	<1	5	36	59
MC26	<1	0	2	12	86
MC28	<1	<1	2	33	65
MC35	2	7	24	45	31
MC36a	3	6	28	43	29
MC36b	2	5	39	41	20
MC39b	1	3	11	37	52
MC44	<1	1	8	37	55
MC45	1	0	2	20	78
MC19a	0	1	4	33	63
MC19b	2	2	6	55	67
MC22	0	12	60	22	18
MC29	1	5	11	33	56
MC30	1	7	18	26	56
MC32	<1	13	25	30	45
MC37	<1	5	33	42	26
MC40	<1	1	3	14	83
MC41	0	2	7	37	56
MC17	0	<1	5	29	67
MC27e	2	3	10	40	50

Section D3

IMAGE ANALYSIS DATA: PRIMARY DATA BASE

Primary data base from which the field centroids of the 7 morphological types were calculated. Measurements are based on the mm scale and derivation of the variables is described in Appendix I of Compton (1989).
Formf. = formfactor, convex. = convexicity.

Data readout from file Capsule (Units=mm)							
No.	AREA	FORMF.	CONVEX.	LENGTH	FRACTAL	ASPECT	FIBER
Min	0.0137	0.3353	0.7282	0.1655	1.0069	1.0197	0.1819
Max	0.7921	0.8632	0.9354	1.3280	1.1792	3.8510	1.9970
1	0.0880	0.7484	0.9076	0.4276	1.0101	1.8035	0.4978
2	0.0586	0.7476	0.9038	0.3655	1.0272	2.0087	0.4063
3	0.0760	0.7614	0.8990	0.4138	1.0238	1.9796	0.4559
4	0.0302	0.7867	0.8943	0.2138	1.0514	1.2425	0.2792
5	0.0502	0.7177	0.8682	0.3172	1.0232	1.7325	0.3889
6	0.0137	0.8150	0.8869	0.1655	1.0769	1.7337	0.1819
7	0.0590	0.7897	0.8966	0.3310	1.0132	1.5833	0.3893
8	0.0645	0.7651	0.8832	0.3788	1.0608	1.9510	0.4183
9	0.0852	0.6423	0.9273	0.5303	1.0939	3.0287	0.5512
10	0.0386	0.8632	0.8897	0.2576	1.0346	1.4470	0.2889
11	0.0696	0.7731	0.8835	0.3939	1.0471	1.9578	0.4305
12	0.1364	0.7711	0.8944	0.5303	1.0885	1.7891	0.6041
13	0.0778	0.6927	0.8799	0.4394	1.0069	2.2076	0.4979
14	0.0886	0.7379	0.8880	0.4394	1.0832	1.9055	0.5053
15	0.0583	0.7749	0.9037	0.3333	1.1191	1.6323	0.3934
16	0.0698	0.7103	0.9000	0.4394	1.0579	2.4932	0.4624
17	0.1068	0.7798	0.8664	0.3939	1.0476	1.1805	0.5293
18	0.0799	0.6891	0.8912	0.4697	1.0762	2.4883	0.5065
19	0.0675	0.7948	0.9094	0.3636	1.0845	1.6859	0.4139
20	0.1359	0.7761	0.8784	0.5000	1.0744	1.5663	0.5997
21	0.0360	0.7502	0.8385	0.2424	1.1792	1.3573	0.3179
22	0.0829	0.8229	0.8889	0.3485	1.0414	1.1921	0.4441
23	0.0455	0.8498	0.8686	0.2424	1.0715	1.0197	0.3187
24	0.0599	0.8617	0.9077	0.2879	1.0394	1.1099	0.3607
25	0.1240	0.7139	0.8719	0.5455	1.0244	2.1268	0.6137
26	0.0967	0.7441	0.9013	0.4849	1.0307	2.1591	0.5241
27	0.0670	0.7576	0.8765	0.3788	1.0325	1.8672	0.4300
28	0.1054	0.8491	0.8978	0.4091	1.0583	1.3150	0.4857
29	0.3283	0.6479	0.8858	0.9804	1.0359	2.6542	1.0754

30	0.2557	0.6436	0.8688	0.8431	1.0632	2.5072	0.9535
31	0.2891	0.7645	0.9354	0.8431	1.0122	2.1855	0.8861
32	0.3560	0.5988	0.9039	1.0980	1.0561	3.1134	1.1846
33	0.3210	0.6476	0.9192	1.0392	1.0125	3.0908	1.0637
34	0.1623	0.6222	0.9099	0.7255	1.0595	2.9708	0.7784
35	0.4890	0.3353	0.7282	1.1569	1.0929	2.4634	1.9970
36	0.1888	0.5628	0.9264	0.8824	1.0181	3.8510	0.9001
37	0.2072	0.7558	0.9190	0.7059	1.0517	2.1312	0.7575
38	0.3095	0.7238	0.9051	0.8628	1.0622	2.1317	0.9592
39	0.2914	0.6694	0.8970	0.9020	1.0142	2.5183	0.9889
40	0.2553	0.6663	0.9025	0.8628	1.0265	2.6424	0.9288
41	0.4283	0.6831	0.8941	1.0392	1.0371	2.2483	1.1806
42	0.1669	0.6790	0.8969	0.6320	1.0187	2.1207	0.7402
43	0.1354	0.6989	0.8922	0.5680	1.0421	2.1102	0.6522
44	0.1290	0.6892	0.8869	0.5520	1.0377	2.0895	0.6434
45	0.1391	0.6573	0.8780	0.5680	1.0197	2.0455	0.6926
46	0.1578	0.7165	0.8944	0.5840	1.0324	1.8878	0.6906
47	0.1331	0.7059	0.9146	0.5760	1.0218	2.2191	0.6417
48	0.1315	0.6964	0.8934	0.5440	1.0322	1.9780	0.6444
49	0.0730	0.7446	0.8868	0.3920	1.0286	1.8329	0.4551
50	0.0838	0.7149	0.8765	0.4080	1.0307	1.7123	0.5042
51	0.1537	0.6774	0.9002	0.6160	1.0169	2.1962	0.7117
52	0.1389	0.7161	0.8814	0.5280	1.0220	1.7341	0.6481
53	0.1773	0.7053	0.8956	0.6400	1.0087	2.0364	0.7412
54	0.3667	0.6909	0.8674	0.9040	1.0207	1.9556	1.0829
55	0.2031	0.7952	0.9066	0.6400	1.0147	1.7438	0.7175
56	0.4058	0.7592	0.8859	0.8720	1.0132	1.6004	1.0561
57	0.2369	0.7082	0.8818	0.7280	1.0200	1.9637	0.8539
58	0.2103	0.7736	0.8960	0.6320	1.0245	1.6260	0.7481
59	0.1599	0.7412	0.9038	0.5840	1.0168	1.8601	0.6762
60	0.3873	0.6976	0.8965	0.9760	1.0190	2.1861	1.1047
61	0.1902	0.7614	0.9076	0.6000	1.0107	1.6194	0.7212
62	0.1805	0.7381	0.9035	0.6080	1.0167	1.7743	0.7211

63	0.2866	0.7329	0.8878	0.7920	1.0256	1.9155	0.9137
64	0.2454	0.6788	0.8744	0.7440	1.0149	1.9820	0.8981
65	0.1686	0.7131	0.8771	0.6080	1.0191	1.9188	0.7165
66	0.7921	0.6908	0.8831	1.3280	1.0191	1.9532	1.5918
67	0.3018	0.7201	0.8646	0.7600	1.0260	1.6409	0.9510
68	0.2275	0.6733	0.8774	0.7360	1.0359	2.1076	0.8699
69	0.2762	0.7324	0.8931	0.7680	1.0215	1.8626	0.8975
70	0.1514	0.6416	0.8967	0.6240	1.0121	2.2993	0.7354
71	0.1623	0.6469	0.8786	0.6480	1.0205	2.3139	0.7569
72	0.1731	0.7690	0.8896	0.5760	1.0239	1.6439	0.6822
73	0.1777	0.6173	0.8876	0.7040	1.0258	2.5164	0.8191
74	0.2013	0.7172	0.9029	0.6640	1.0235	1.9165	0.7794
75	0.1468	0.6621	0.8578	0.5840	1.0375	2.0498	0.7077
76	0.1173	0.6662	0.8981	0.5520	1.0284	2.3241	0.6297
77	0.2934	0.7466	0.8928	0.7760	1.0131	1.7793	0.9106
78	0.2062	0.7002	0.9024	0.6880	1.0137	2.0222	0.8037
79	0.1193	0.6804	0.8785	0.5120	1.0366	1.9242	0.6249
80	0.1429	0.7163	0.9044	0.5600	1.0326	1.9211	0.6573

Data readout from file Cauliflower (Units=mm)

No.	AREA	FORMF.	CONVEX.	LENGTH	FRACTAL	ASPECT	FIBER
Min	0.0609	0.5270	0.7878	0.3646	1.0195	1.2347	0.4719
Max	0.8825	0.7604	0.8980	1.4571	1.1514	2.4560	1.8065
1	0.7469	0.7229	0.8643	1.1143	1.0688	1.3891	1.4916
2	0.3322	0.7206	0.8783	0.8857	1.0510	2.0879	0.9974
3	0.5233	0.6774	0.8620	1.0857	1.0552	1.9795	1.3133
4	0.3322	0.7274	0.8825	0.8286	1.0634	1.7931	0.9899
5	0.2392	0.6751	0.8531	0.7143	1.1168	1.8599	0.8902
6	0.7584	0.7067	0.8714	1.1429	1.0639	1.4490	1.5303
7	0.6139	0.5911	0.8383	1.1714	1.0994	1.9621	1.5697
8	0.5274	0.5698	0.8378	1.0571	1.0701	1.8460	1.4919
9	0.2678	0.6439	0.7999	0.7143	1.1514	1.6323	0.9755
10	0.5469	0.7429	0.8736	0.9429	1.0445	1.3521	1.2485

11	0.3347	0.6733	0.8917	0.9143	1.0661	2.2243	1.0551
12	0.8825	0.6264	0.8692	1.4000	1.0618	1.9479	1.8065
13	0.7780	0.5763	0.8463	1.4571	1.0315	2.4560	1.7982
14	0.4637	0.7107	0.8481	0.8857	1.0992	1.4187	1.1913
15	0.7927	0.7127	0.8560	1.1714	1.0606	1.4580	1.5540
16	0.6400	0.6553	0.8563	1.1714	1.0657	1.8709	1.4889
17	0.7380	0.6156	0.8245	1.2286	1.0602	1.7721	1.6727
18	0.3478	0.7604	0.8700	0.7429	1.0789	1.3136	0.9763
19	0.3236	0.5270	0.7878	0.8000	1.0720	1.7043	1.2313
20	0.0609	0.6311	0.8460	0.3646	1.0337	1.9111	0.4719
21	0.1765	0.6869	0.8638	0.5520	1.0489	1.4536	0.7545
22	0.4129	0.6472	0.8561	0.8720	1.0289	1.5685	1.2069
23	0.3329	0.7270	0.8904	0.7920	1.0273	1.6108	0.9913
24	0.1742	0.6811	0.8791	0.5280	1.0195	1.3271	0.7546
25	0.2751	0.7303	0.8789	0.6640	1.0272	1.3296	0.8978
26	0.3602	0.6986	0.8612	0.7680	1.0330	1.3643	1.0641
27	0.2264	0.7209	0.8980	0.6480	1.0336	1.5812	0.8231
28	0.3878	0.7124	0.8687	0.7760	1.0286	1.2797	1.0874
29	0.1574	0.6349	0.8477	0.5280	1.0541	1.4982	0.7555
30	0.1566	0.6585	0.8839	0.5760	1.0559	1.8453	0.7338
31	0.4535	0.6962	0.8752	0.9440	1.0249	1.6918	1.1972
32	0.2300	0.5756	0.8532	0.7840	1.0279	2.3990	0.9786
33	0.5110	0.6988	0.8603	0.9120	1.0245	1.3543	1.2673
34	0.3251	0.6339	0.8415	0.7920	1.0425	1.6565	1.0871
35	0.2905	0.6783	0.8586	0.7600	1.0524	1.7151	0.9776
36	0.2579	0.7438	0.8739	0.6560	1.0421	1.3957	0.8564
37	0.2661	0.6758	0.8560	0.6880	1.0314	1.5059	0.9381
38	0.2008	0.7594	0.8866	0.6000	1.0238	1.5199	0.7426
39	0.2886	0.6336	0.8661	0.7680	1.0387	1.7707	1.0246
40	0.4292	0.5772	0.8218	1.0160	1.0635	2.1319	1.3342
41	0.2914	0.6466	0.8505	0.7120	1.0358	1.4665	1.0146
42	0.3160	0.6574	0.8593	0.7600	1.0368	1.5544	1.0438
43	0.2563	0.6193	0.8560	0.7520	1.0554	1.9330	0.9816

44	0.3848	0.6601	0.8749	0.8720	1.0449	1.7027	1.1483
45	0.2432	0.5764	0.8721	0.8080	1.0298	2.4112	1.0053
46	0.1765	0.6292	0.8181	0.5920	1.0970	1.7123	0.8054
47	0.3231	0.6915	0.8682	0.7840	1.0238	1.6289	1.0159
48	0.4200	0.6910	0.8684	0.8240	1.0344	1.3433	1.1589
49	0.3751	0.6471	0.8448	0.7840	1.0409	1.3654	1.1504
50	0.2133	0.6728	0.8537	0.6480	1.0438	1.6953	0.8428
51	0.1588	0.7338	0.8684	0.5120	1.0402	1.3777	0.6795
52	0.2311	0.7077	0.8885	0.6560	1.0553	1.5889	0.8439
53	0.2262	0.7139	0.8741	0.5840	1.0386	1.2347	0.8290
54	0.1356	0.7068	0.8554	0.4640	1.0567	1.3151	0.6469
55	0.3825	0.6715	0.8642	0.7840	1.0504	1.3339	1.1302
56	0.4798	0.7292	0.8653	0.8560	1.0441	1.2539	1.1871
57	0.2605	0.6688	0.8932	0.8080	1.0288	2.2332	0.9356
58	0.4918	0.6821	0.8584	0.9120	1.0394	1.4179	1.2665
59	0.7523	0.6934	0.8710	1.2320	1.0233	1.7443	1.5468
60	0.3613	0.7388	0.8746	0.7760	1.0339	1.3936	1.0193

Data readout from file Fragmentary (Units =mm)

No.	AREA	FORMF.	CONVEX.	LENGTH	FRACTAL	ASPECT	FIBER
Min	0.0061	0.5126	0.7954	0.0956	1.0138	1.2357	0.1165
Max	0.2002	0.8485	0.9340	0.6977	1.1647	2.8738	0.9220
1	0.0072	0.7666	0.8962	0.1324	1.1396	2.1447	0.1399
2	0.0473	0.8224	0.9340	0.2794	1.0246	1.3771	0.3358
3	0.0107	0.6501	0.8890	0.1691	1.0827	2.3985	0.1937
4	0.0328	0.7335	0.8728	0.2427	1.0574	1.5208	0.3090
5	0.0061	0.8485	0.9085	0.0956	1.1008	1.2357	0.1165
6	0.0108	0.6024	0.8515	0.1471	1.1123	1.7268	0.2056
7	0.0088	0.7377	0.8729	0.1324	1.1647	1.7145	0.1594
8	0.0108	0.7753	0.8782	0.1397	1.1017	1.5318	0.1693
9	0.0208	0.8021	0.9013	0.1912	1.0883	1.4826	0.2279
10	0.0092	0.7889	0.8840	0.1250	1.0712	1.4268	0.1538
11	0.0085	0.7655	0.8864	0.1324	1.1376	1.7905	0.1517

12	0.0107	0.6439	0.8709	0.1691	1.1610	2.4120	0.1946
13	0.0216	0.6209	0.8669	0.1985	1.0720	1.5493	0.2846
14	0.0080	0.6653	0.8729	0.1324	1.1568	1.9308	0.1641
15	0.0289	0.6513	0.8472	0.2427	1.1253	1.7661	0.3177
16	0.0242	0.6384	0.8413	0.2132	1.1048	1.6040	0.2952
17	0.0070	0.6444	0.8540	0.1397	1.0785	2.5037	0.1580
18	0.0275	0.7345	0.8787	0.2206	1.0523	1.4949	0.2827
19	0.0157	0.8306	0.9043	0.1618	1.0859	1.3900	0.1918
20	0.0260	0.5365	0.8196	0.2574	1.0526	2.2735	0.3450
21	0.0098	0.8240	0.8755	0.1324	1.1540	1.5168	0.1524
22	0.0130	0.7394	0.8925	0.1618	1.1207	1.7434	0.1930
23	0.0152	0.6956	0.8702	0.1765	1.0691	1.7766	0.2193
24	0.0129	0.7426	0.8649	0.1544	1.1496	1.5720	0.1919
25	0.0281	0.7053	0.9151	0.2721	1.0881	2.3645	0.2948
26	0.0300	0.6150	0.8733	0.2794	1.0740	2.3286	0.3375
27	0.0123	0.7759	0.8558	0.1397	1.0896	1.3101	0.1807
28	0.0136	0.8164	0.9313	0.1544	1.0847	1.4768	0.1814
29	0.0191	0.6445	0.8546	0.2132	1.1075	2.1025	0.2606
30	0.0109	0.7717	0.9067	0.1618	1.0796	2.1228	0.1708
31	0.0355	0.5794	0.8628	0.3015	1.0679	2.2854	0.3828
32	0.0189	0.7046	0.8607	0.1838	1.0959	1.5125	0.2423
33	0.0187	0.7411	0.8748	0.1838	1.0897	1.5331	0.2313
34	0.0167	0.7836	0.8964	0.1912	1.1043	1.9216	0.2082
35	0.0109	0.6910	0.8415	0.1471	1.1527	1.7070	0.1869
36	0.0149	0.6767	0.8660	0.1838	1.0782	1.9913	0.2220
37	0.1341	0.5605	0.8396	0.5600	1.0469	2.0646	0.7609
38	0.1271	0.6820	0.8783	0.5040	1.0353	1.7253	0.6439
39	0.0976	0.6650	0.8601	0.4320	1.0842	1.6389	0.5751
40	0.0831	0.7319	0.8842	0.3680	1.0482	1.3570	0.4925
41	0.0406	0.6065	0.8805	0.3360	1.0655	2.5047	0.3967
42	0.0853	0.5848	0.8272	0.4080	1.0557	1.6780	0.5895
43	0.1255	0.6835	0.8690	0.4880	1.0439	1.6243	0.6388
44	0.1313	0.5641	0.8466	0.5520	1.0683	2.0469	0.7496

45	0.0975	0.7091	0.8884	0.4160	1.0691	1.5010	0.5474
46	0.0810	0.7444	0.9033	0.3680	1.0417	1.3995	0.4795
47	0.1436	0.6384	0.8566	0.5280	1.0713	1.6688	0.7188
48	0.0413	0.6961	0.8519	0.2720	1.0693	1.5162	0.3615
49	0.1444	0.5688	0.8152	0.5600	1.0637	1.8988	0.7816
50	0.0435	0.5416	0.8206	0.3120	1.0818	1.9668	0.4432
51	0.1572	0.6787	0.9004	0.5440	1.0144	1.6095	0.7187
52	0.0283	0.6586	0.8929	0.2320	1.0808	1.6295	0.3119
53	0.0597	0.6568	0.8687	0.3840	1.0296	2.1989	0.4537
54	0.0552	0.7448	0.9199	0.3120	1.0704	1.4892	0.3959
55	0.1857	0.6452	0.8582	0.5600	1.0270	1.4158	0.8111
56	0.0844	0.6856	0.8747	0.4080	1.0374	1.6987	0.5227
57	0.0662	0.6911	0.8679	0.3280	1.0819	1.3525	0.4599
58	0.1672	0.5963	0.8312	0.5760	1.0783	1.7115	0.8141
59	0.0481	0.5404	0.8021	0.3440	1.0753	2.1888	0.4668
60	0.0465	0.7025	0.8950	0.2960	1.0707	1.6124	0.3806
61	0.0637	0.6273	0.8566	0.3680	1.0700	1.8513	0.4851
62	0.0463	0.6995	0.8681	0.3120	1.0473	1.8276	0.3813
63	0.0397	0.6503	0.8679	0.2800	1.0717	1.7026	0.3728
64	0.1048	0.6126	0.8677	0.4880	1.0395	1.9998	0.6324
65	0.0691	0.6726	0.8799	0.3600	1.0369	1.6018	0.4799
66	0.1478	0.6001	0.8457	0.5680	1.0466	1.9090	0.7622
67	0.1235	0.6578	0.8543	0.4800	1.0450	1.5930	0.6521
68	0.0955	0.6655	0.8520	0.4160	1.0578	1.5391	0.5685
69	0.1238	0.5392	0.8525	0.5520	1.0350	2.1885	0.7502
70	0.0803	0.7474	0.9022	0.3680	1.0605	1.4142	0.4758
71	0.1005	0.6018	0.8450	0.4400	1.0343	1.6535	0.6272
72	0.0561	0.7118	0.8765	0.2960	1.0739	1.2896	0.4137
73	0.0845	0.6907	0.8901	0.4320	1.0138	1.9342	0.5201
74	0.0642	0.5847	0.8445	0.3600	1.0686	1.7457	0.5114
75	0.0833	0.6492	0.8504	0.3840	1.0762	1.4964	0.5410
76	0.0742	0.7496	0.8824	0.3600	1.0460	1.4740	0.4564
77	0.1141	0.6154	0.8388	0.4800	1.0610	1.7470	0.6577

78	0.0575	0.5647	0.8555	0.4080	1.0591	2.6200	0.4958
79	0.0719	0.5973	0.8779	0.4160	1.0296	2.1325	0.5334
80	0.1288	0.6602	0.8585	0.5040	1.0253	1.6994	0.6642
81	0.1209	0.5667	0.7954	0.4496	1.0750	1.3987	0.7171
82	0.1152	0.5889	0.8653	0.4961	1.0197	1.8634	0.6817
83	0.1513	0.5126	0.8575	0.6899	1.0412	2.8738	0.8572
84	0.1928	0.5517	0.8250	0.6744	1.0364	2.0862	0.9220
85	0.0494	0.7280	0.8731	0.2791	1.0530	1.3034	0.3814
86	0.0395	0.7284	0.8736	0.2558	1.0756	1.3843	0.3408
87	0.0881	0.7234	0.8710	0.4109	1.0288	1.6429	0.5120
88	0.0964	0.6888	0.8593	0.4186	1.0366	1.5447	0.5566
89	0.1652	0.6420	0.8794	0.6279	1.0168	2.1135	0.7679
90	0.2002	0.5864	0.8570	0.6977	1.0538	2.1577	0.9014
91	0.1665	0.6575	0.8649	0.5504	1.0282	1.5466	0.7574
92	0.0971	0.6967	0.8789	0.4341	1.0543	1.6686	0.5535
93	0.1064	0.7158	0.8564	0.4419	1.0433	1.5613	0.5675
94	0.0951	0.7476	0.8769	0.4186	1.0439	1.5700	0.5178
95	0.0433	0.7562	0.8953	0.2713	1.0599	1.4258	0.3462
96	0.1320	0.5489	0.8382	0.5969	1.0306	2.4254	0.7656
97	0.1740	0.6701	0.8626	0.5271	1.0274	1.3240	0.7635
98	0.0938	0.6492	0.8572	0.4264	1.0782	1.6646	0.5739
99	0.0803	0.5742	0.8246	0.4031	1.0766	1.7507	0.5791
100	0.1148	0.5738	0.8066	0.4419	1.0772	1.4269	0.6929

Data readout from file Lobate (Units=mm)							
No.	AREA	FORMF.	CONVEX.	LENGTH	FRACTAL	ASPECT	FIBER
Min	0.0641	0.4714	0.7794	0.3228	1.0036	1.1853	0.4661
Max	1.0517	0.8404	0.9042	1.4375	1.1164	2.3470	1.8642
1	0.3409	0.5189	0.7831	0.8351	1.0391	1.7728	1.2766
2	0.1185	0.5404	0.7915	0.4750	1.0430	1.6306	0.7329
3	0.1907	0.6514	0.8586	0.6618	1.0502	2.0227	0.8164
4	0.2874	0.6526	0.8502	0.7647	1.0478	1.7614	1.0007
5	0.3036	0.6281	0.8473	0.8235	1.0673	1.9604	1.0577

6	0.1516	0.6608	0.8661	0.5588	1.0261	1.7867	0.7202
7	0.2169	0.7650	0.8881	0.6471	1.0613	1.6570	0.7671
8	0.4007	0.7701	0.8799	0.7794	1.0132	1.2427	1.0367
9	0.0737	0.7040	0.8836	0.3947	1.0313	1.8419	0.4784
10	0.0748	0.7340	0.8723	0.3618	1.0208	1.4784	0.4661
11	0.1235	0.7663	0.8875	0.4868	1.0237	1.6455	0.5781
12	0.0898	0.7922	0.9042	0.3618	1.0257	1.1853	0.4787
13	0.5087	0.6737	0.8657	1.0000	1.0436	1.6926	1.3003
14	0.4054	0.7331	0.8931	0.9375	1.0245	1.8949	1.0865
15	0.3429	0.7172	0.8670	0.7917	1.0590	1.5546	1.0170
16	0.5091	0.5932	0.8374	1.0625	1.0646	1.9442	1.4259
17	0.4388	0.6040	0.8136	0.8958	1.0868	1.5556	1.3072
18	0.4892	0.6412	0.8276	0.8958	1.1164	1.3674	1.3225
19	0.3364	0.6160	0.8192	0.7500	1.1041	1.3990	1.1287
20	0.3021	0.7259	0.8928	0.8125	1.0507	1.9121	0.9454
21	0.5135	0.6191	0.8131	0.9375	1.0615	1.4385	1.3896
22	1.0517	0.6762	0.8530	1.4375	1.0735	1.6917	1.8642
23	0.2678	0.5956	0.8328	0.7755	1.0720	1.9725	1.0313
24	0.6089	0.5970	0.8493	1.1020	1.0646	1.7213	1.5526
25	0.4719	0.6896	0.8769	1.0000	1.0363	1.8459	1.2303
26	0.3707	0.7141	0.8870	0.9184	1.0446	2.0020	1.0611
27	0.1685	0.7725	0.8930	0.5507	1.0278	1.5273	0.6704
28	0.1888	0.7305	0.8926	0.6232	1.0269	1.7835	0.7437
29	0.1395	0.7597	0.8874	0.5217	1.0501	1.6786	0.6188
30	0.1401	0.7372	0.8722	0.5073	1.0036	1.5633	0.6359
31	0.0960	0.8404	0.8952	0.3913	1.0447	1.3220	0.4683
32	0.1615	0.6915	0.8882	0.5797	1.0434	1.8074	0.7183
33	0.1493	0.7678	0.8807	0.5073	1.0338	1.4497	0.6345
34	0.1456	0.6814	0.8846	0.5507	1.0596	1.8105	0.6895
35	0.0924	0.7167	0.8653	0.4493	1.0832	1.9109	0.5283
36'	0.1401	0.6040	0.8218	0.5031	1.0224	' 1.5332	0.7387
37	0.3684	0.4714	0.7887	0.9786	1.0329	2.3263	1.4115
38	0.1553	0.6007	0.8125	0.5039	1.0634	1.3619	0.7807

39	0.1228	0.6815	0.8740	0.5276	1.0426	1.9939	0.6332
40	0.1366	0.7116	0.8670	0.4803	1.0603	1.4158	0.6459
41	0.2926	0.7065	0.8698	0.7638	1.0275	1.7206	0.9507
42	0.1487	0.5998	0.8386	0.5669	1.0367	1.8877	0.7648
43	0.0928	0.6661	0.8631	0.4252	1.0541	1.6760	0.5600
44	0.1243	0.5803	0.8065	0.5512	1.0569	2.1719	0.7152
45	0.2897	0.6141	0.8603	0.8032	1.0221	1.9536	1.0498
46	0.0797	0.6911	0.8832	0.4252	1.0333	1.9960	0.5047
47	0.1127	0.6556	0.8895	0.5433	1.0282	2.3470	0.6245
48	0.1840	0.6129	0.8269	0.5669	1.0417	1.4734	0.8379
49	0.1706	0.5470	0.7996	0.5906	1.0178	1.7715	0.8721
50	0.1160	0.5853	0.8133	0.4803	1.0376	1.7155	0.6870
51	0.1879	0.5558	0.7794	0.6299	1.0513	1.8390	0.9056
52	0.2497	0.6201	0.8645	0.7638	1.0345	2.0627	0.9680
53	0.2749	0.5847	0.8391	0.7244	1.0311	1.6361	1.0582
54	0.2944	0.6748	0.8743	0.7795	1.0237	1.7906	0.9880
55	0.2063	0.6083	0.8392	0.6221	1.0350	1.6026	0.8918
56	0.1143	0.5924	0.8547	0.4961	1.0478	1.8803	0.6762
57	0.1261	0.7151	0.8728	0.4724	1.0247	1.4967	0.6182
58	0.2104	0.5928	0.8278	0.6614	1.0397	1.8063	0.9171
59	0.1367	0.5224	0.8035	0.5591	1.0558	2.0140	0.8047
60	0.0775	0.6002	0.8345	0.4095	1.0921	1.8900	0.5518
61	0.0641	0.6388	0.8138	0.3228	1.0780	1.3541	0.4798
62	0.0936	0.5929	0.8217	0.4488	1.0617	1.8784	0.6117
63	0.1207	0.5882	0.8286	0.4803	1.0597	1.6379	0.6984
64	0.1369	0.5657	0.8037	0.5354	1.0931	1.8210	0.7639
65	0.1284	0.5822	0.8277	0.5197	1.0769	1.8301	0.7255
66	0.1939	0.5863	0.8187	0.6378	1.0438	1.8243	0.8873
67	0.1066	0.6337	0.8179	0.4409	1.0725	1.5511	0.6226
68	0.1078	0.6140	0.8693	0.5276	1.0404	2.3081	0.6405
69	0.1523	0.5235	0.8029	0.6142	1.0550	2.2030	0.8486
70	0.1959	0.5674	0.8354	0.7008	1.0618	2.2334	0.9120

Data readout from file Ovoidal (Units=mm)							
No.	AREA	FORMFACT	CONVEXITY	LENGTH	FRACTAL	ASPECT	FIBER
Min	0.0150	0.3035	0.6583	0.1613	1.0063	1.1589	0.1927
Max	1.4563	0.8752	0.9172	1.6286	1.2292	3.2860	2.4271
1	0.5216	0.6291	0.8851	1.2286	1.0376	2.6203	1.3847
2	0.2506	0.7476	0.8770	0.6857	1.0589	1.6030	0.8407
3	0.3804	0.5413	0.8173	1.0286	1.0790	2.5079	1.3116
4	0.4629	0.7980	0.8678	0.8571	1.0433	1.3141	1.0798
5	0.1518	0.7106	0.8369	0.5429	1.0625	1.6676	0.6818
6	0.2727	0.6228	0.8283	0.7429	1.1246	1.7507	1.0084
7	0.4947	0.7469	0.8616	0.8857	1.0506	1.3126	1.1821
8	0.4702	0.5808	0.8689	1.0857	1.0776	2.2337	1.3905
9	0.5388	0.6203	0.8562	1.1714	1.0655	2.2737	1.4215
10	0.3347	0.6199	0.8337	0.8571	1.1050	1.9219	1.1209
11	0.4180	0.6187	0.8237	0.9429	1.0566	1.8537	1.2543
12	0.2343	0.7132	0.8719	0.6571	1.1219	1.5700	0.8444
13	0.2580	0.5826	0.8721	0.9143	1.1130	2.9673	1.0278
14	0.4833	0.7453	0.8708	0.8857	1.0879	1.3501	1.1703
15	0.1731	0.4975	0.7379	0.6286	1.1797	2.0098	0.9348
16	0.4114	0.6921	0.8885	0.9714	1.0834	2.0204	1.1456
17	0.2604	0.5256	0.7557	0.7143	1.1782	1.6860	1.1066
18	1.4563	0.7226	0.8743	1.6286	1.0411	1.5480	2.0836
19	0.6441	0.3035	0.6583	1.3143	1.2292	2.4086	2.4271
20	0.2563	0.7879	0.8620	0.6571	1.0972	1.4115	0.8128
21	0.2327	0.7325	0.8438	0.6571	1.1031	1.5829	0.8236
22	0.5127	0.7672	0.8972	1.0000	1.0650	1.6774	1.1764
23	0.1959	0.7228	0.8515	0.5714	1.1257	1.3934	0.7640
24	0.3184	0.6525	0.8193	0.8286	1.0931	1.8832	1.0534
25	0.4122	0.6467	0.8278	0.9143	1.0666	1.7545	1.2066
26	0.1878	0.6854	0.8778	0.6571	1.0861	2.0268	0.7797
27	0.2204	0.5529	0.8808	0.8857	1.1011	3.2860	0.9844
28	0.3829	0.5669	0.8238	0.9429	1.1008	2.0487	1.2756
29	0.1322	0.5251	0.8191	0.5714	1.1211	2.1959	0.7890

30	0.3608	0.6399	0.8372	0.8571	1.1067	1.7630	1.1375
31	0.3445	0.6427	0.8587	0.8857	1.1378	2.0040	1.1080
32	0.3820	0.7117	0.8470	0.8000	1.1089	1.4020	1.0802
33	0.5290	0.5690	0.8526	1.1429	1.1131	2.1959	1.4958
34	0.3608	0.7793	0.8529	0.7429	1.0544	1.2562	0.9737
35	0.3216	0.6192	0.8835	0.9143	1.1087	2.3258	1.0997
36	0.3755	0.6613	0.8343	0.8571	1.0812	1.6833	1.1327
37	0.4669	0.8282	0.8909	0.8286	1.0657	1.1970	1.0478
38	0.4555	0.6507	0.8767	1.0286	1.0624	2.0493	1.2625
39	0.0413	0.7561	0.9053	0.2984	1.0604	1.8827	0.3381
40	0.0457	0.7530	0.8870	0.2984	1.0695	1.6769	0.3567
41	0.0215	0.8752	0.8849	0.1774	1.0696	1.1890	0.2127
42	0.0150	0.8045	0.8676	0.1613	1.1059	1.4659	0.1927
43	0.0588	0.7393	0.8793	0.3065	1.0217	1.3241	0.4110
44	0.0342	0.7161	0.8847	0.2419	1.0556	1.4378	0.3217
45	0.0363	0.8224	0.8664	0.2339	1.0670	1.2339	0.2940
46	0.0224	0.8434	0.9079	0.1936	1.0635	1.4012	0.2253
47	0.0615	0.8084	0.8860	0.3036	1.0552	1.2261	0.3889
48	0.0422	0.7678	0.8813	0.2768	1.0371	1.5434	0.3372
49	0.0377	0.7821	0.8947	0.2500	1.0981	1.3843	0.3138
50	0.1122	0.7331	0.8883	0.4375	1.0552	1.4320	0.5718
51	0.0526	0.8435	0.9172	0.2899	1.0438	1.3252	0.3453
52	0.0592	0.7865	0.8794	0.3044	1.0417	1.2920	0.3912
53	0.0490	0.7469	0.8700	0.3044	1.0394	1.6174	0.3720
54	0.0985	0.8323	0.9034	0.4058	1.0407	1.3993	0.4788
55	0.0617	0.7953	0.9100	0.3188	1.0218	1.3744	0.3955
56	0.0826	0.8386	0.9119	0.3841	1.0187	1.5125	0.4354
57	0.1019	0.7458	0.8853	0.3889	1.0367	1.2116	0.5370
58	0.1309	0.6065	0.7969	0.5000	1.0997	1.6362	0.7120
59	0.0821	0.6739	0.8307	0.3819	1.0712	1.5041	0.5222
60	0.1945	0.8154	0.8959	0.5918	1.0513	1.5276	0.6863
61	0.1920	0.7101	0.8747	0.6122	1.0731	1.6790	0.7671
62	0.1449	0.8378	0.8997	0.5102	1.0875	1.5227	0.5773

63	0.2624	0.8121	0.8913	0.6531	1.0381	1.3522	0.8001
64	0.2095	0.8336	0.9072	0.5918	1.0759	1.3987	0.6974
65	0.1616	0.8311	0.9009	0.5102	1.0421	1.3376	0.6143
66	0.1220	0.7528	0.8865	0.4898	1.0331	1.6926	0.5833
67	0.1474	0.8229	0.8977	0.4694	1.0978	1.2211	0.5923
68	0.2249	0.7735	0.8862	0.6735	1.0396	1.7434	0.7738
69	0.2045	0.8196	0.8990	0.5918	1.0569	1.4396	0.7003
70	0.1737	0.7952	0.8869	0.5510	1.0770	1.4750	0.6636
71	0.2112	0.7583	0.8946	0.6327	1.0651	1.6222	0.7626
72	0.2441	0.7455	0.8653	0.6531	1.0700	1.4742	0.8316
73	0.1387	0.8259	0.9132	0.4898	1.0927	1.4565	0.5725
74	0.1783	0.7652	0.8469	0.5306	1.0667	1.3062	0.6952
75	0.2228	0.8533	0.9013	0.5918	1.0394	1.2987	0.7027
76	0.2620	0.7713	0.8792	0.6531	1.0416	1.3547	0.8372
77	0.1183	0.8191	0.8938	0.4490	1.0881	1.4310	0.5329
78	0.1862	0.7760	0.8815	0.5918	1.0465	1.6082	0.7020
79	0.0886	0.8224	0.9088	0.3600	1.0063	1.1894	0.4595
80	0.0714	0.6497	0.8237	0.3440	1.0594	1.3841	0.5005
81	0.1350	0.7688	0.8906	0.4803	1.0274	1.4360	0.6026
82	0.1531	0.7693	0.8762	0.4961	1.0389	1.3336	0.6415
83	0.1501	0.7473	0.8723	0.4724	1.0544	1.2138	0.6508
84	0.1681	0.7601	0.8878	0.5354	1.0373	1.4318	0.6791
85	0.1034	0.7818	0.8858	0.4252	1.0370	1.4760	0.5197
86	0.0877	0.8103	0.8846	0.3543	1.0314	1.1589	0.4635
87	0.0773	0.7995	0.9004	0.3780	1.0251	1.5759	0.4404
88	0.0958	0.8071	0.9026	0.3858	1.0544	1.2808	0.4862
89	0.1324	0.7604	0.8890	0.4803	1.0223	1.4696	0.6024
90	0.1334	0.7069	0.8541	0.4646	1.0697	1.3451	0.6415
91	0.1197	0.7291	0.8553	0.4567	1.0366	1.4698	0.5929
92	0.2334	0.7764	0.8913	0.6221	1.0268	1.3848	0.7856
93	0.1521	0.7572	0.8773	0.5118	1.0240	1.4491	0.6479
94	0.0881	0.7704	0.8933	0.3780	1.0343	1.3482	0.4859
95	0.1773	0.7563	0.8763	0.5354	1.0586	1.3441	0.7002

96	0.1925	0.7215	0.8817	0.5827	1.0136	1.4909	0.7583
97	0.1419	0.7884	0.9057	0.4724	1.0465	1.2995	0.6045
98	0.1437	0.8101	0.9072	0.4803	1.0206	1.3327	0.5934
99	0.1361	0.7255	0.8924	0.4961	1.0264	1.5350	0.6349
100	0.1106	0.7606	0.9028	0.4173	1.0179	1.3013	0.5505

Data readout from file Tabular (Units=mm)							
No.	AREA	FORMFACT	CONVEXITY	LENGTH	FRACTAL	ASPECT	FIBER
Min	0.1034	0.5818	0.8563	0.3937	0.9954	1.1411	0.4804
Max	0.4224	0.8508	0.9245	1.0638	1.0747	2.9484	1.2004
1	0.3572	0.7186	0.8939	0.9149	1.0297	2.0702	1.0364
2	0.3680	0.8123	0.8917	0.8085	1.0311	1.5029	0.9474
3	0.1969	0.7980	0.9062	0.6383	1.0547	1.7957	0.7044
4	0.3169	0.7687	0.8974	0.7234	1.0531	1.3782	0.9234
5	0.3314	0.6929	0.8766	0.8723	1.0191	2.0232	1.0272
6	0.3852	0.6953	0.8870	0.9362	1.0382	2.0017	1.1045
7	0.2024	0.7238	0.9081	0.6809	1.0432	2.0176	0.7756
8	0.4183	0.7029	0.8636	0.9149	1.0158	1.7278	1.1414
9	0.4224	0.7140	0.9052	1.0426	1.0300	2.3002	1.1329
10	0.3513	0.5818	0.8883	1.0638	1.0401	2.9484	1.2004
11	0.3368	0.6757	0.8926	0.9362	1.0711	2.3289	1.0557
12	0.3581	0.7619	0.8755	0.8085	1.0747	1.5523	0.9890
13	0.1225	0.7092	0.8606	0.4646	1.0297	1.4893	0.6132
14	0.1929	0.7723	0.8844	0.5906	1.0429	1.5343	0.7176
15	0.2561	0.7189	0.8820	0.7008	1.0429	1.6447	0.8773
16	0.2422	0.6643	0.8756	0.7402	1.0222	1.9889	0.9066
17	0.1034	0.8504	0.9045	0.3937	1.0142	1.2256	0.4804
18	0.2664	0.6772	0.8713	0.7323	1.0314	1.7400	0.9371
19	0.1733	0.7449	0.8934	0.5748	1.0114	1.6334	0.7011
20	0.1072	0.7831	0.8945	0.4409	1.0318	1.5405	0.5285
21	0.1205	0.7618	0.9049	0.4882	1.0137	1.7051	0.5737
22	0.1749	0.7749	0.9024	0.5827	1.0472	1.6679	0.6813
23	0.1443	0.6922	0.8563	0.5039	1.0346	1.4870	0.6783

24	0.1105	0.7497	0.9026	0.4646	1.0316	1.6802	0.5569
25	0.1194	0.7464	0.8774	0.4882	1.0360	1.7226	0.5811
26	0.3513	0.7562	0.8940	0.8320	1.0223	1.6973	0.9858
27	0.2152	0.7797	0.9064	0.6480	1.0154	1.6783	0.7516
28	0.2367	0.7569	0.9000	0.6800	1.0119	1.6805	0.8086
29	0.2258	0.7881	0.8812	0.6640	1.0062	1.6794	0.7627
30	0.3295	0.7521	0.8865	0.8000	1.0245	1.6693	0.9591
31	0.2241	0.7770	0.8782	0.6240	1.0229	1.4641	0.7694
32	0.2969	0.8508	0.9245	0.6480	1.0126	1.1411	0.8136
33	0.1439	0.8349	0.8805	0.4720	1.0259	1.2746	0.5772
34	0.1475	0.7149	0.8646	0.4960	1.0340	1.3952	0.6687
35	0.3276	0.7607	0.8803	0.7440	1.0219	1.4164	0.9473
36	0.1228	0.7930	0.9005	0.4640	1.0368	1.4807	0.5593
37	0.1835	0.7494	0.8757	0.5840	1.0454	1.5855	0.7179
38	0.1352	0.8022	0.9015	0.4880	1.0236	1.4878	0.5809
39	0.2679	0.8133	0.9083	0.6480	1.0205	1.2941	0.8074
40	0.2182	0.8313	0.9073	0.5920	1.0230	1.3326	0.7137
41	0.2431	0.8363	0.9124	0.6080	1.0181	1.2472	0.7489
42	0.1754	0.7949	0.8983	0.5600	1.0159	1.5144	0.6671
43	0.2358	0.7095	0.8808	0.6800	1.0276	1.6879	0.8506
44	0.1731	0.7514	0.8982	0.5600	0.9954	1.5389	0.6957
45	0.1663	0.8068	0.8948	0.5120	1.0181	1.3034	0.6408
46	0.2463	0.7559	0.8855	0.6320	1.0179	1.3482	0.8258
47	0.1801	0.7978	0.8882	0.5440	1.0268	1.3700	0.6738
48	0.1181	0.7804	0.8874	0.4160	1.0407	1.1916	0.5565
49	0.1596	0.7524	0.8820	0.4960	1.0125	1.2681	0.6673
50	0.1919	0.7304	0.8718	0.5760	1.0249	1.4559	0.7497

Data readout from file Vermicular (Units=mm)

No.	AREA	FORMFACT	CONVEXITY	LENGTH	FRACTAL	ASPECT	FIBER
Min	0.0187	0.2730	0.7077	0.1926	1.0126	1.3203	0.2391
Max	0.7138	0.8130	0.9227	1.6250	1.1092	4.4630	2.3235
1	0.2176	0.6371	0.9024	0.7681	1.0231	2.4382	0.8862

2	0.1569	0.5838	0.9069	0.7246	1.0691	3.0735	0.8004
3	0.1987	0.7121	0.8823	0.6522	1.0148	1.8674	0.7786
4	0.2808	0.4582	0.8773	1.0870	1.0423	3.9339	1.2546
5	0.1832	0.5568	0.8982	0.8116	1.0253	3.3231	0.8931
6	0.1844	0.5709	0.8488	0.7391	1.0727	2.6892	0.8811
7	0.1792	0.5977	0.8886	0.7391	1.0320	2.7760	0.8414
8	0.1617	0.7159	0.8946	0.5942	1.0323	1.9099	0.6995
9	0.0337	0.8130	0.8930	0.2444	1.0308	1.5004	0.2864
10	0.0270	0.8058	0.9133	0.2074	1.0815	1.3203	0.2585
11	0.0192	0.7234	0.8977	0.1926	1.0474	1.6582	0.2391
12	0.0188	0.6905	0.8860	0.2148	1.1038	2.1787	0.2455
13	0.0203	0.6278	0.8831	0.2148	1.0804	1.9997	0.2736
14	0.0246	0.7580	0.8819	0.2074	1.1092	1.4768	0.2603
15	0.0256	0.7270	0.8691	0.2296	1.0410	1.7890	0.2747
16	0.0427	0.6148	0.8955	0.3407	1.0602	2.4431	0.4029
17	0.0232	0.6994	0.8843	0.2296	1.0427	2.0040	0.2696
18	0.0407	0.5753	0.8568	0.3407	1.0428	2.5824	0.4115
19	0.0229	0.7634	0.8932	0.2148	1.0929	1.7436	0.2496
20	0.0524	0.6379	0.8462	0.3482	1.0710	2.0423	0.4343
21	0.0288	0.7481	0.8945	0.2519	1.0460	1.9287	0.2849
22	0.0187	0.6461	0.8731	0.2296	1.0473	2.5532	0.2569
23	0.0351	0.6822	0.8849	0.2741	1.0957	1.8692	0.3381
24	0.0217	0.7694	0.8964	0.1926	1.0592	1.4382	0.2413
25	0.2544	0.4044	0.8092	0.9750	1.0324	3.4639	1.2892
26	0.3919	0.4642	0.8520	1.2500	1.0292	3.7140	1.4700
27	0.4200	0.5785	0.9022	1.1500	1.0463	2.8756	1.3178
28	0.1944	0.6132	0.9019	0.7500	1.0430	2.6207	0.8609
29	0.7138	0.5038	0.8769	1.6250	1.0377	3.4264	1.8832
30	0.2400	0.6245	0.9214	0.9000	1.0593	3.1018	0.9442
31	0.3863	0.4628	0.8954	1.3000	1.0604	4.1022	1.4622
32	0.5238	0.2730	0.7077	1.5750	1.1069	4.4630	2.3235
33	0.2000	0.6169	0.8670	0.7500	1.0325	2.5393	0.8694
34	0.3388	0.5374	0.8883	1.1250	1.0569	3.4629	1.2437

35	0.3763	0.5163	0.8922	1.1750	1.0202	3.3962	1.3457
36	0.3156	0.5660	0.8783	1.0250	1.0662	3.0555	1.1595
37	0.3131	0.7113	0.9035	0.8250	1.0593	1.9004	0.9783
38	0.2156	0.6455	0.9030	0.8000	1.0738	2.6949	0.8738
39	0.1278	0.7057	0.8750	0.5280	1.0296	1.9080	0.6289
40	0.2005	0.6109	0.8863	0.7200	1.0183	2.3121	0.8767
41	0.1587	0.6527	0.8924	0.6400	1.0215	2.3074	0.7436
42	0.1995	0.6001	0.8690	0.7120	1.0170	2.2680	0.8854
43	0.0621	0.7477	0.9085	0.3520	1.0605	1.7226	0.4184
44	0.1183	0.7473	0.9187	0.5120	1.0165	1.9420	0.5779
45	0.0681	0.8076	0.9093	0.3440	1.0534	1.4645	0.4097
46	0.1354	0.7267	0.8887	0.4880	1.0432	1.4853	0.6324
47	0.1753	0.7155	0.8799	0.5680	1.0366	1.5672	0.7286
48	0.0993	0.7435	0.8770	0.4080	1.0515	1.4037	0.5315
49	0.1613	0.7029	0.8905	0.5600	1.0265	1.6712	0.7087
50	0.1150	0.6258	0.8792	0.5520	1.0298	2.3762	0.6526
51	0.0580	0.5714	0.8714	0.4000	1.0480	2.4861	0.4938
52	0.1130	0.7042	0.9128	0.4960	1.0368	1.9047	0.5923
53	0.0989	0.6943	0.8671	0.4320	1.0411	1.6141	0.5602
54	0.1427	0.6809	0.8971	0.5680	1.0231	1.9873	0.6832
55	0.1067	0.6338	0.8746	0.4960	1.0283	2.0327	0.6229
56	0.1103	0.6345	0.8713	0.5200	1.0551	2.1775	0.6329
57	0.1085	0.6234	0.8980	0.5600	1.0126	2.6176	0.6356
58	0.1293	0.7293	0.8949	0.5200	1.0286	1.8173	0.6163
59	0.0737	0.6923	0.9198	0.4160	1.0470	2.0740	0.4848
60	0.1334	0.6430	0.8917	0.5680	1.0403	2.1445	0.6894
61	0.0868	0.7475	0.8875	0.4000	1.0212	1.5704	0.4948
62	0.1155	0.7345	0.8879	0.4480	1.0139	1.4651	0.5790
63	0.1018	0.6990	0.8869	0.4160	1.0382	1.4263	0.5656
64	0.0627	0.7920	0.9147	0.3280	1.0492	1.4438	0.4000
65	0.0883	0.7278	0.8811	0.3920	1.0395	1.4666	0.5101
66	0.1224	0.7995	0.9227	0.4800	1.0312	1.6086	0.5545
67	0.0874	0.6704	0.8874	0.4400	1.0447	1.9413	0.5410

68	0.0609	0.6806	0.9056	0.3840	1.0352	2.1495	0.4463
69	0.1203	0.7813	0.9029	0.4400	1.0319	1.3358	0.5610
70	0.0915	0.6493	0.8716	0.4720	1.0471	2.1610	0.5669

Section D4

IMAGE ANALYSIS DATA: TEST DATA BASE

Test data base for the image analysis model. Measurements are based on the mm scale and derivation of the variables is described in Appendix I of Compton (1989). Formf. = formfactor, convex. = convexicity.

Data read out from file MC29 (Units=mm)

No.	AREA	FORMF.	CONVEX.	LENGTH	FRACTAL	ASPECT	FIBER
Min	0.0284	0.5804	0.8303	0.2273	0.9994	1.0884	0.2869
Max	0.2467	0.8537	0.9190	0.6742	1.0823	2.4970	0.9189
1	0.1045	0.7289	0.8863	0.4545	1.0211	1.7048	0.5541
2	0.0760	0.6935	0.8519	0.3561	1.0799	1.3939	0.4917
3	0.1019	0.8165	0.9012	0.3939	1.0529	1.2493	0.4962
4	0.1492	0.6867	0.8804	0.5833	1.0198	2.0080	0.6939
5	0.0622	0.7500	0.8760	0.3258	1.0404	1.4341	0.4175
6	0.0554	0.7712	0.9007	0.3258	1.0279	1.6408	0.3851
7	0.1028	0.7731	0.8789	0.4167	1.0312	1.4148	0.5235
8	0.0907	0.6545	0.9011	0.4773	1.0368	2.2372	0.5611
9	0.0644	0.8097	0.9094	0.3333	1.0576	1.4523	0.3975
10	0.0486	0.7530	0.9000	0.3106	1.0499	1.7114	0.3680
11	0.0848	0.7011	0.8909	0.4091	1.0200	1.6997	0.5150
12	0.0504	0.8025	0.8950	0.2803	1.0188	1.2842	0.3547
13	0.0991	0.7343	0.8842	0.3939	1.0184	1.2925	0.5365
14	0.0515	0.7546	0.9000	0.3106	1.0462	1.6008	0.3781
15	0.0582	0.6384	0.8777	0.4015	1.0603	2.4970	0.4576
16	0.1438	0.7518	0.8894	0.5076	1.0368	1.5188	0.6338
17	0.0952	0.6485	0.8592	0.4394	1.0377	1.7557	0.5785
18	0.1323	0.7289	0.8827	0.5076	1.0538	1.6734	0.6237
19	0.0926	0.7088	0.8631	0.4015	1.0404	1.4672	0.5336
20	0.0785	0.6486	0.8664	0.4015	1.0459	1.7816	0.5252
21	0.0284	0.7353	0.8698	0.2273	1.0367	1.5449	0.2869
22	0.0979	0.7240	0.8952	0.4242	1.0424	1.5661	0.5393
23	0.0646	0.7089	0.8781	0.3636	1.0465	1.7748	0.4454
24	0.0859	0.7098	0.8848	0.4318	1.0173	1.8986	0.5131
25	0.1086	0.6848	0.9014	0.4621	1.0381	1.6924	0.5935
26	0.0473	0.7298	0.8479	0.2955	1.0339	1.5726	0.3725
27	0.2467	0.6606	0.8603	0.6742	1.0394	1.5693	0.9189
28	0.1090	0.7034	0.8684	0.4394	1.0479	1.4973	0.5824
29	0.1158	0.7666	0.9017	0.4545	1.0393	1.5107	0.5596

30	0.2112	0.6308	0.8532	0.6591	1.0369	1.7836	0.8793
31	0.0493	0.7105	0.8681	0.2803	1.0642	1.3205	0.3885
32	0.0656	0.7520	0.8972	0.3409	1.0650	1.4984	0.4280
33	0.0571	0.7645	0.8992	0.3182	1.0619	1.4996	0.3938
34	0.1249	0.6105	0.8503	0.5455	1.0463	2.1080	0.6923
35	0.0713	0.6883	0.8832	0.3788	1.0186	1.7396	0.4789
36	0.0528	0.6656	0.8726	0.3258	1.0162	1.7365	0.4227
37	0.0956	0.7283	0.9086	0.4697	1.0208	2.0355	0.5304
38	0.0876	0.6861	0.8610	0.3939	1.0276	1.4976	0.5323
39	0.1499	0.7570	0.8933	0.5000	1.0253	1.3944	0.6434
40	0.0723	0.7618	0.8878	0.3333	1.0500	1.2633	0.4445
41	0.0667	0.6884	0.8785	0.3712	1.0373	1.7912	0.4633
42	0.1040	0.6543	0.8469	0.4773	1.0448	1.9172	0.6009
43	0.0953	0.7408	0.8876	0.4242	1.0293	1.6148	0.5224
44	0.0738	0.6633	0.8585	0.3485	1.0674	1.3722	0.5011
45	0.0623	0.7506	0.8830	0.3712	1.0449	1.9397	0.4176
46	0.0619	0.7193	0.8963	0.3409	1.0229	1.6052	0.4310
47	0.0712	0.7470	0.8932	0.3636	1.0188	1.5848	0.4483
48	0.0551	0.7847	0.8872	0.2879	1.0662	1.2309	0.3782
49	0.0787	0.8083	0.8970	0.3636	1.0396	1.4061	0.4402
50	0.1475	0.6722	0.8622	0.5227	1.0219	1.5793	0.7013
51	0.0561	0.7736	0.8891	0.3333	1.0291	1.7083	0.3863
52	0.0822	0.6730	0.8806	0.4091	1.0488	1.7631	0.5230
53	0.0838	0.6867	0.8745	0.4318	1.0306	1.9506	0.5203
54	0.0809	0.8165	0.9168	0.3485	1.0514	1.2285	0.4419
55	0.0994	0.6814	0.8505	0.4091	1.0337	1.4104	0.5699
56	0.0815	0.7144	0.8858	0.3939	1.0280	1.6310	0.4974
57	0.1081	0.7934	0.8741	0.4015	1.0555	1.2177	0.5246
58	0.1298	0.7505	0.8686	0.4545	1.0214	1.3190	0.6030
59	0.0868	0.7459	0.8834	0.4015	1.0410	1.5846	0.4956
60	0.0938	0.7711	0.8947	0.4091	1.0280	1.5113	0.5010
61	0.0661	0.7543	0.8807	0.3485	1.0390	1.5636	0.4286
62	0.0909	0.7960	0.9046	0.3636	1.0183	1.1822	0.4795

63	0.0836	0.6822	0.8976	0.4545	1.0496	2.1993	0.5220
64	0.0764	0.7217	0.8799	0.3712	1.0643	1.5293	0.4778
65	0.0615	0.7363	0.9023	0.3258	1.0487	1.4532	0.4216
66	0.0794	0.6837	0.8468	0.4015	1.0521	1.7579	0.5079
67	0.1897	0.7208	0.8705	0.5530	1.0423	1.3387	0.7536
68	0.1451	0.7927	0.8890	0.4848	1.0199	1.3464	0.6083
69	0.0863	0.7828	0.8949	0.3788	1.0386	1.3901	0.4742
70	0.0946	0.7841	0.8858	0.3712	1.0485	1.1828	0.4960
71	0.0989	0.7753	0.9036	0.4394	1.0346	1.6792	0.5120
72	0.0926	0.7123	0.9129	0.4470	1.0485	1.8849	0.5313
73	0.1140	0.7534	0.8736	0.4242	1.0569	1.3058	0.5633
74	0.0537	0.6327	0.8439	0.3106	1.0442	1.5246	0.4423
75	0.1361	0.7042	0.8751	0.4773	1.0445	1.4007	0.6500
76	0.1366	0.7406	0.8708	0.4621	1.0385	1.2902	0.6255
77	0.1660	0.7469	0.8929	0.5303	1.0493	1.4205	0.6848
78	0.0739	0.8179	0.8889	0.3258	1.0281	1.1634	0.4217
79	0.1419	0.6976	0.8670	0.5227	1.0590	1.6520	0.6687
80	0.0883	0.7388	0.8903	0.3864	1.0428	1.4179	0.5038
81	0.0561	0.7635	0.8828	0.2879	1.0696	1.2032	0.3909
82	0.1124	0.7081	0.8690	0.4318	1.0524	1.3861	0.5882
83	0.0879	0.6617	0.8914	0.4621	1.0250	2.1572	0.5477
84	0.1294	0.7488	0.8844	0.4621	1.0143	1.3776	0.6031
85	0.0934	0.6985	0.8826	0.4545	1.0470	1.9394	0.5419
86	0.0579	0.7579	0.8891	0.3258	1.0588	1.5593	0.3995
87	0.0782	0.7647	0.9024	0.4091	1.0369	1.8677	0.4606
88	0.0606	0.7795	0.8967	0.3182	1.0235	1.3972	0.3990
89	0.1142	0.6472	0.8650	0.4924	1.0289	1.8509	0.6346
90	0.0968	0.6248	0.8852	0.5076	1.0243	2.3893	0.5993
91	0.1283	0.7275	0.8701	0.4621	1.0296	1.3909	0.6151
92	0.1753	0.6880	0.8636	0.5455	1.0221	1.4237	0.7512
93	0.0891	0.7152	0.8717	0.3864	1.0552	1.4016	0.5197
94	0.0841	0.7898	0.8842	0.3712	1.0323	1.3657	0.4645
95	0.0927	0.7277	0.8800	0.4167	1.0405	1.5987	0.5228

96	0.1093	0.7921	0.8974	0.4167	1.0380	1.3147	0.5283
97	0.0903	0.7106	0.9050	0.4470	1.0411	1.9383	0.5259
98	0.0510	0.6426	0.8499	0.3030	1.0510	1.5286	0.4262
99	0.0840	0.7449	0.8908	0.4015	1.0399	1.6455	0.4882
100	0.0540	0.6732	0.8451	0.3030	1.0353	1.4271	0.4239
101	0.1214	0.6565	0.8648	0.5152	1.0394	1.9130	0.6475
102	0.1346	0.7357	0.8692	0.4621	1.0253	1.3129	0.6244
103	0.0492	0.7983	0.8863	0.2879	1.0202	1.4097	0.3521
104	0.0642	0.7863	0.8828	0.3106	1.0341	1.2303	0.4074
105	0.0800	0.7505	0.8771	0.3636	1.0198	1.3796	0.4734
106	0.0831	0.6650	0.8524	0.3864	1.0578	1.5230	0.5307
107	0.0763	0.6225	0.8303	0.3712	1.0434	1.5334	0.5335
108	0.0615	0.7156	0.8600	0.3485	1.0290	1.7006	0.4316
109	0.1003	0.7644	0.8851	0.4167	1.0367	1.4583	0.5219
110	0.0559	0.7350	0.8911	0.3258	1.0434	1.6251	0.4026
111	0.0741	0.7249	0.8823	0.3788	1.0147	1.6632	0.4688
112	0.1069	0.7371	0.8699	0.4167	1.0431	1.3514	0.5554
113	0.1234	0.6901	0.8794	0.4697	1.0565	1.5147	0.6288
114	0.0771	0.7157	0.8983	0.3939	1.0487	1.7387	0.4832
115	0.1338	0.6652	0.8911	0.5455	1.0330	1.9507	0.6732
116	0.0771	0.6411	0.8749	0.4394	1.0301	2.2297	0.5253
117	0.0705	0.7061	0.8523	0.3333	1.0366	1.3033	0.4668
118	0.0645	0.7412	0.9055	0.3409	1.0443	1.5284	0.4296
119	0.1012	0.7575	0.8768	0.4242	1.0205	1.5045	0.5285
120	0.0673	0.7926	0.8946	0.3182	1.0584	1.2306	0.4144
121	0.0996	0.6248	0.8887	0.4848	1.0292	2.0876	0.6079
122	0.0841	0.7306	0.8756	0.3788	1.0528	1.4332	0.4962
123	0.0981	0.7204	0.8862	0.4242	1.0302	1.5618	0.5420
124	0.0603	0.6545	0.8799	0.3712	1.0382	2.0113	0.4575
125	0.0572	0.7379	0.8753	0.3258	1.0162	1.5832	0.4058
126	0.0685	0.7877	0.8984	0.3333	1.0371	1.3482	0.4204
127	0.1340	0.6736	0.9009	0.5606	1.0172	2.0729	0.6673
128	0.0761	0.6499	0.8743	0.4394	1.0150	2.2637	0.5166

129	0.0698	0.7231	0.8733	0.3409	1.0268	1.3907	0.4560
130	0.0877	0.7128	0.8835	0.4167	1.0327	1.7065	0.5168
131	0.1061	0.6947	0.8858	0.4697	1.0282	1.8057	0.5801
132	0.0654	0.6859	0.8580	0.3636	1.0473	1.7478	0.4600
133	0.0834	0.7065	0.8958	0.4394	1.0238	2.0420	0.5075
134	0.0639	0.7659	0.8880	0.3409	1.0234	1.5462	0.4159
135	0.1041	0.7920	0.8959	0.3939	1.0275	1.2174	0.5156
136	0.0620	0.6991	0.8756	0.3712	1.0570	1.9499	0.4412
137	0.1117	0.7645	0.8946	0.4394	1.0427	1.4554	0.5507
138	0.0962	0.6550	0.8641	0.4697	1.0573	2.0189	0.5775
139	0.0527	0.7936	0.8870	0.2955	1.0506	1.3818	0.3663
140	0.0818	0.7487	0.9179	0.4091	1.0222	1.7716	0.4798
141	0.0487	0.8410	0.8967	0.2576	1.0268	1.0884	0.3334
142	0.1112	0.6523	0.8332	0.4318	1.0514	1.4032	0.6228
143	0.0750	0.8537	0.9084	0.3258	1.0265	1.1415	0.4075
144	0.1001	0.7054	0.8791	0.4091	1.0370	1.3978	0.5569
145	0.1778	0.6529	0.8682	0.5606	1.0373	1.4944	0.7869
146	0.0980	0.6837	0.8694	0.4242	1.0218	1.5639	0.5642
147	0.1217	0.7375	0.8997	0.4924	1.0367	1.7197	0.5923
148	0.1284	0.7447	0.8954	0.4621	1.0219	1.3894	0.6038
149	0.0875	0.7549	0.8975	0.4015	1.0569	1.5687	0.4928
150	0.1125	0.7600	0.8885	0.4470	1.0286	1.5019	0.5557
151	0.0709	0.8345	0.9016	0.3182	1.0137	1.1539	0.4054
152	0.0708	0.6994	0.8868	0.3939	1.0320	1.9198	0.4713
153	0.0719	0.7286	0.8779	0.3561	1.0615	1.4911	0.4597
154	0.0711	0.7872	0.8817	0.3485	1.0414	1.4346	0.4284
155	0.0972	0.7777	0.9190	0.4470	1.0374	1.7829	0.5062
156	0.0654	0.7538	0.8850	0.3333	1.0357	1.4250	0.4266
157	0.0776	0.6819	0.8870	0.4015	1.0381	1.8044	0.5032
158	0.0973	0.7252	0.8808	0.4091	1.0496	1.4461	0.5371
159	0.0975	0.7281	0.8818	0.4242	1.0448	1.5726	0.5359
160	0.0862	0.8051	0.9078	0.3788	1.0501	1.3912	0.4623
161	0.0702	0.7260	0.8522	0.3409	1.0553	1.3825	0.4557

162	0.0747	0.7577	0.8915	0.3864	1.0614	1.7245	0.4539
163	0.1268	0.7043	0.8815	0.4924	1.0318	1.6394	0.6273
164	0.0810	0.7537	0.8734	0.3712	1.0329	1.4272	0.4748
165	0.0604	0.7667	0.9058	0.3106	1.0515	1.3232	0.4042
166	0.1243	0.7157	0.8565	0.4470	1.0136	1.3346	0.6132
167	0.0668	0.7738	0.9019	0.3333	1.0424	1.3900	0.4216
168	0.1255	0.7658	0.8817	0.4545	1.0330	1.3736	0.5829
169	0.0615	0.7991	0.8939	0.3182	0.9994	1.3738	0.3930
170	0.0751	0.7435	0.8810	0.3485	1.0253	1.3445	0.4622
171	0.1373	0.6089	0.8327	0.5152	1.0581	1.6599	0.7270
172	0.1445	0.6609	0.8548	0.5379	1.0402	1.7295	0.7029
173	0.0885	0.7447	0.8803	0.4242	1.0170	1.7605	0.5012
174	0.1599	0.7099	0.8736	0.5606	1.0275	1.6923	0.7002
175	0.1031	0.7102	0.8805	0.4621	1.0522	1.7974	0.5621
176	0.0790	0.7026	0.8666	0.3788	1.0477	1.5423	0.4962
177	0.0964	0.6814	0.8692	0.4394	1.0286	1.7291	0.5612
178	0.0953	0.7420	0.9065	0.4394	1.0252	1.7533	0.5216
179	0.1478	0.7071	0.8693	0.5303	1.0198	1.6289	0.6754
180	0.0957	0.8151	0.9167	0.3864	1.0459	1.2861	0.4816
181	0.0698	0.7698	0.9085	0.3864	1.0427	1.8657	0.4328
182	0.1895	0.5804	0.8527	0.6667	1.0412	2.0720	0.8832
183	0.0741	0.6458	0.8707	0.4015	1.0545	1.9026	0.5121
184	0.0543	0.6970	0.8576	0.3182	1.0633	1.5915	0.4139
185	0.0930	0.8002	0.9091	0.4015	1.0167	1.4607	0.4828
186	0.0820	0.6522	0.8980	0.4697	1.0354	2.4168	0.5348
187	0.0992	0.8327	0.9165	0.3788	1.0357	1.1735	0.4803
188	0.0884	0.7620	0.8973	0.3864	1.0359	1.4157	0.4913
189	0.0464	0.7734	0.8902	0.2803	1.0823	1.4211	0.3514
190	0.1038	0.7618	0.8683	0.4015	1.0405	1.2796	0.5326
191	0.0929	0.6642	0.8630	0.4697	1.0494	2.1025	0.5615
192	0.0781	0.7577	0.8786	0.3485	1.0416	1.2815	0.4641
193	0.1097	0.7260	0.8630	0.4318	1.0464	1.4260	0.5697
194	0.0588	0.7648	0.8939	0.3333	1.0266	1.6155	0.3996

195	0.0636	0.7421	0.8980	0.3561	1.0443	1.7204	0.4261
196	0.0540	0.7594	0.8735	0.2955	1.0452	1.3431	0.3852
197	0.0748	0.6889	0.8821	0.4242	1.0367	2.1335	0.4901
198	0.1113	0.7244	0.8833	0.4697	1.0110	1.7092	0.5748
199	0.0685	0.6936	0.8639	0.3409	1.0223	1.4242	0.4665
200	0.0970	0.7615	0.8743	0.4167	1.0429	1.5167	0.5150

Data readout from file MC44 (Units=mm)

No.	AREA	FORMF.	CONVEX.	LENGTH	FRACTAL	ASPECT	FIBER
Min	0.0273	0.4271	0.7568	0.2273	1.0149	1.1748	0.3024
Max	0.2521	0.8272	0.9214	0.8376	1.1653	3.3417	1.0175
1	0.0680	0.6999	0.8663	0.3504	1.0813	1.5323	0.4617
2	0.0659	0.6997	0.8643	0.3248	1.0655	1.3276	0.4546
3	0.0649	0.6288	0.8703	0.3504	1.0611	1.6176	0.4887
4	0.0904	0.6273	0.8513	0.4359	1.0675	1.8294	0.5775
5	0.0510	0.6363	0.8517	0.3248	1.0687	1.7955	0.4294
6	0.0777	0.5444	0.8682	0.4957	1.0593	2.8914	0.5903
7	0.0370	0.6349	0.8593	0.3162	1.0480	2.4323	0.3662
8	0.0470	0.5816	0.8647	0.3932	1.0605	3.0125	0.4394
9	0.0663	0.5552	0.8166	0.4017	1.0555	2.1623	0.5382
10	0.0525	0.5928	0.8267	0.3761	1.0916	2.4231	0.4579
11	0.0642	0.6552	0.8626	0.3761	1.0379	1.9293	0.4717
12	0.0464	0.6691	0.8425	0.2906	1.0831	1.5472	0.3946
13	0.0552	0.5791	0.8672	0.3504	1.0689	1.9533	0.4772
14	0.0343	0.6035	0.8804	0.3162	1.0672	2.6457	0.3655
15	0.0454	0.6583	0.8634	0.3162	1.0956	1.9313	0.3950
16	0.0436	0.7358	0.8913	0.3077	1.0661	1.8976	0.3553
17	0.0354	0.7073	0.8950	0.2991	1.0580	2.2578	0.3302
18	0.1212	0.6547	0.8574	0.4872	1.0528	1.6852	0.6483
19	0.0644	0.5151	0.8181	0.3932	1.0850	2.1259	0.5577
20	0.0713	0.6859	0.8675	0.3419	1.0668	1.3661	0.4802
21	0.0930	0.6407	0.8543	0.4274	1.0846	1.6906	0.5770
22	0.1466	0.6076	0.8393	0.5641	1.0718	1.8972	0.7525

23	0.0379	0.6711	0.8521	0.2564	1.0607	1.4609	0.3560
24	0.0769	0.7506	0.8812	0.3504	1.0448	1.3232	0.4642
25	0.2174	0.5469	0.8375	0.7179	1.0381	2.0977	0.9848
26	0.0368	0.4933	0.8031	0.2991	1.1071	2.1573	0.4335
27	0.1014	0.7212	0.8745	0.4530	1.0551	1.7505	0.5506
28	0.0660	0.7201	0.8603	0.3248	1.0751	1.3259	0.4447
29	0.0639	0.6542	0.8639	0.3504	1.0543	1.6479	0.4711
30	0.0510	0.5126	0.8257	0.3846	1.1204	2.6279	0.4977
31	0.0404	0.8051	0.8718	0.2564	1.0515	1.3542	0.3165
32	0.0495	0.6702	0.8965	0.3248	1.0512	1.8597	0.4070
33	0.0649	0.7136	0.8557	0.3419	1.0432	1.5286	0.4441
34	0.0607	0.5625	0.8440	0.3932	1.0790	2.2731	0.5107
35	0.0670	0.6728	0.8711	0.3761	1.0772	1.8380	0.4723
36	0.0441	0.6355	0.8693	0.3419	1.0678	2.3758	0.3998
37	0.0731	0.6659	0.8881	0.4188	1.0554	2.1278	0.4971
38	0.0696	0.6809	0.8370	0.3504	1.0830	1.4907	0.4771
39	0.1278	0.5649	0.7958	0.5299	1.0874	1.9233	0.7389
40	0.0522	0.8272	0.8834	0.2906	1.0661	1.3458	0.3506
41	0.0788	0.6215	0.8666	0.4274	1.0673	2.0437	0.5430
42	0.0973	0.5249	0.8400	0.5299	1.0688	2.6126	0.6770
43	0.0718	0.6088	0.8775	0.4103	1.0524	2.0706	0.5259
44	0.2521	0.5813	0.8677	0.8376	1.0423	2.5097	1.0175
45	0.1096	0.6846	0.8678	0.4444	1.0410	1.5294	0.5961
46	0.0736	0.5850	0.8091	0.3932	1.0374	1.8281	0.5472
47	0.0777	0.5456	0.8432	0.4615	1.0873	2.4674	0.5898
48	0.0900	0.6174	0.8020	0.4188	1.0890	1.6756	0.5830
49	0.0347	0.6070	0.8672	0.2991	1.1208	2.3057	0.3663
50	0.0352	0.6794	0.9214	0.3077	1.0640	2.4156	0.3399
51	0.0694	0.6228	0.8523	0.3846	1.0488	1.8583	0.5087
52	0.0514	0.7415	0.8979	0.3419	1.0487	2.0027	0.3831
53	0.0682	0.5567	0.8746	0.4444	1.0523	2.6218	0.5452
54	0.0630	0.6581	0.8413	0.3675	1.0477	1.8693	0.4658
55	0.0670	0.6398	0.8793	0.4017	1.0547	2.1357	0.4902

56	0.0596	0.6673	0.8712	0.3846	1.0646	2.2084	0.4483
57	0.0931	0.6191	0.8271	0.4615	1.0509	2.0156	0.5916
58	0.1748	0.7127	0.9055	0.5726	1.0313	1.6026	0.7298
59	0.0951	0.5226	0.7856	0.4274	1.0964	1.6469	0.6713
60	0.0898	0.6447	0.8141	0.4017	1.0713	1.5242	0.5643
61	0.0911	0.5868	0.8261	0.4274	1.0619	1.7316	0.6077
62	0.0919	0.6378	0.8385	0.4359	1.0554	1.7943	0.5754
63	0.1062	0.5569	0.8060	0.4359	1.0953	1.5156	0.6801
64	0.0966	0.5996	0.8528	0.4701	1.0411	2.0132	0.6167
65	0.1851	0.6030	0.8225	0.5983	1.0499	1.6605	0.8500
66	0.0546	0.6415	0.8674	0.3504	1.0705	1.9741	0.4419
67	0.1603	0.6543	0.8427	0.5385	1.0634	1.5358	0.7459
68	0.1021	0.6342	0.8532	0.4872	1.0549	2.0508	0.6091
69	0.0440	0.6874	0.8674	0.3162	1.0858	2.0008	0.3765
70	0.0602	0.5994	0.8369	0.3333	1.0532	1.5726	0.4867
71	0.0648	0.6558	0.8360	0.3419	1.0771	1.5306	0.4735
72	0.0862	0.6468	0.8520	0.4103	1.0628	1.6793	0.5517
73	0.0766	0.6565	0.8684	0.3846	1.0552	1.6590	0.5142
74	0.0578	0.5858	0.8445	0.3590	1.0367	1.9568	0.4846
75	0.0756	0.6435	0.8581	0.4359	1.0649	2.2398	0.5186
76	0.1131	0.6633	0.8467	0.4615	1.0585	1.6105	0.6203
77	0.0584	0.6578	0.8661	0.3504	1.0612	1.8306	0.4484
78	0.0774	0.6660	0.8489	0.3846	1.0692	1.6389	0.5115
79	0.0800	0.5971	0.9091	0.5299	1.0384	3.2373	0.5626
80	0.1543	0.4271	0.7702	0.6752	1.0453	2.6818	0.9712
81	0.0450	0.6048	0.8309	0.3077	1.0820	1.8307	0.4182
82	0.0638	0.7619	0.9084	0.3419	1.0532	1.5595	0.4174
83	0.0517	0.7146	0.8693	0.3077	1.0864	1.5573	0.3961
84	0.0758	0.6947	0.8611	0.3675	1.0381	1.5081	0.4904
85	0.0706	0.5831	0.8451	0.3846	1.0736	1.8209	0.5375
86	0.0655	0.6598	0.8574	0.3504	1.0535	1.6029	0.4737
87	0.0679	0.6774	0.8456	0.3333	1.0481	1.3640	0.4729
88	0.0481	0.6666	0.8171	0.2906	1.0845	1.4836	0.4029

89	0.0499	0.5906	0.8213	0.3333	1.0648	1.9537	0.4477
90	0.0742	0.6292	0.8284	0.3504	1.0883	1.3813	0.5222
91	0.0412	0.5977	0.8449	0.3077	1.0770	2.0246	0.4035
92	0.0816	0.6863	0.8391	0.3761	1.0623	1.4600	0.5135
93	0.0572	0.6144	0.8613	0.3846	1.0529	2.3130	0.4663
94	0.1427	0.7460	0.8764	0.4872	1.0443	1.3895	0.6356
95	0.0573	0.5802	0.8590	0.3590	1.0485	1.9739	0.4859
96	0.1038	0.7155	0.8989	0.4530	1.0410	1.7035	0.5606
97	0.0418	0.4782	0.8157	0.3248	1.1324	2.2512	0.4711
98	0.0327	0.6901	0.8857	0.2650	1.0829	1.8718	0.3238
99	0.0435	0.6861	0.8710	0.3077	1.0782	1.9013	0.3751
100	0.0301	0.7138	0.8689	0.2393	1.1099	1.6297	0.3024
101	0.0663	0.7094	0.8674	0.3504	1.0731	1.5781	0.4512
102	0.0314	0.7221	0.8901	0.2393	1.0200	1.5500	0.3062
103	0.0492	0.7056	0.8860	0.3077	1.0786	1.6525	0.3901
104	0.0391	0.7873	0.8982	0.2821	1.0372	1.7623	0.3176
105	0.0582	0.7137	0.8864	0.3590	1.0489	1.9401	0.4207
106	0.0440	0.6304	0.8392	0.2906	1.1653	1.6438	0.4018
107	0.0451	0.7115	0.8526	0.2564	1.0808	1.1854	0.3711
108	0.0571	0.7813	0.8828	0.3077	1.0557	1.3840	0.3866
109	0.0657	0.6514	0.9188	0.3932	1.0483	2.0805	0.4790
110	0.1006	0.5307	0.8307	0.4786	1.0406	2.0042	0.6834
111	0.0844	0.6891	0.8472	0.3846	1.0481	1.4785	0.5207
112	0.0478	0.6382	0.8542	0.3333	1.0455	2.0489	0.4150
113	0.0405	0.6317	0.8470	0.2906	1.1066	1.8096	0.3849
114	0.0352	0.5115	0.8271	0.2991	1.1089	2.2683	0.4142
115	0.0586	0.7262	0.8574	0.3333	1.0586	1.6233	0.4162
116	0.0732	0.7700	0.9071	0.3761	1.0192	1.6589	0.4431
117	0.0755	0.4836	0.7568	0.4017	1.1388	1.8652	0.6286
118	0.0730	0.7209	0.8563	0.3590	1.0404	1.4925	0.4673
119	0.1011	0.5625	0.8417	0.4530	1.0314	1.7564	0.6590
120	0.1106	0.6103	0.8439	0.4957	1.0720	1.9487	0.6515
121	0.0690	0.6964	0.8658	0.3590	1.0529	1.5954	0.4668

122	0.1435	0.6083	0.8834	0.6068	1.0371	2.2922	0.7440
123	0.0800	0.7050	0.8804	0.4103	1.0532	1.8309	0.4979
124	0.0724	0.6559	0.8636	0.3846	1.0558	1.7702	0.5004
125	0.1640	0.6151	0.8405	0.5812	1.0442	1.7864	0.7890
126	0.0827	0.7705	0.8684	0.3761	1.0343	1.4370	0.4707
127	0.0679	0.6711	0.8563	0.3419	1.0580	1.4472	0.4765
128	0.0915	0.6456	0.8580	0.4188	1.0460	1.6430	0.5693
129	0.0527	0.6133	0.9044	0.3846	1.0773	2.5315	0.4484
130	0.0505	0.5130	0.8301	0.3162	1.0538	1.7079	0.4949
131	0.0552	0.6777	0.8705	0.3419	1.0387	1.8460	0.4262
132	0.0921	0.6463	0.8494	0.4274	1.0584	1.7093	0.5706
133	0.0779	0.6624	0.8364	0.4103	1.0622	1.8861	0.5154
134	0.1205	0.5890	0.8743	0.4786	1.0587	1.6285	0.6971
135	0.0983	0.6238	0.8502	0.4786	1.0634	2.0566	0.6049
136	0.0467	0.5703	0.8596	0.3333	1.1259	2.1070	0.4436
137	0.0464	0.6707	0.8893	0.3248	1.0400	2.0008	0.3940
138	0.0868	0.7375	0.8786	0.4188	1.0439	1.7478	0.5003
139	0.0911	0.6817	0.8772	0.4359	1.0320	1.8126	0.5453
140	0.0626	0.6622	0.9096	0.3846	1.1087	2.0897	0.4620
141	0.0783	0.6838	0.8478	0.3846	1.0492	1.6158	0.5044
142	0.0360	0.5685	0.8526	0.2821	1.0842	1.9357	0.3905
143	0.0461	0.6391	0.8529	0.2991	1.0761	1.6681	0.4070
144	0.0596	0.6911	0.8538	0.3419	1.0736	1.6875	0.4365
145	0.0431	0.6529	0.8633	0.2906	1.1177	1.6861	0.3874
146	0.0618	0.7417	0.8771	0.2991	1.0495	1.1748	0.4202
147	0.0569	0.7004	0.8459	0.2991	1.0891	1.2993	0.4221
148	0.1016	0.7031	0.8689	0.4274	1.0679	1.5240	0.5624
149	0.1716	0.5497	0.8329	0.6581	1.0422	2.2508	0.8720
150	0.0618	0.5410	0.7918	0.3419	1.0516	1.6180	0.5289
151	0.0810	0.4950	0.8880	0.5128	1.0355	2.9729	0.6417
152	0.1218	0.6273	0.8756	0.5470	1.0583	2.1839	0.6704
153	0.0433	0.7008	0.8631	0.2821	1.0522	1.5632	0.3681
154	0.0710	0.7404	0.8720	0.3504	1.0446	1.4562	0.4511

155	0.0544	0.7503	0.8863	0.3077	1.0522	1.4664	0.3906
156	0.0880	0.5230	0.8580	0.5641	1.0449	3.3417	0.6454
157	0.0497	0.6265	0.8562	0.3248	1.0609	1.8503	0.4286
158	0.0421	0.5938	0.8605	0.3504	1.1091	2.6452	0.4096
159	0.0711	0.7029	0.8671	0.3561	1.0604	1.5111	0.4704
160	0.0273	0.6631	0.8634	0.2424	1.0908	1.8780	0.3049
161	0.0532	0.6632	0.8602	0.3333	1.0520	1.8152	0.4255
162	0.0781	0.6646	0.8356	0.3788	1.0754	1.5650	0.5145
163	0.0826	0.6911	0.8655	0.4167	1.0149	1.8289	0.5138
164	0.0628	0.6053	0.8494	0.3788	1.0797	2.0120	0.4937
165	0.0392	0.6463	0.8331	0.2727	1.1072	1.6243	0.3722
166	0.0608	0.6000	0.8456	0.3485	1.0730	1.7230	0.4890
167	0.0812	0.5849	0.8431	0.4394	1.0555	2.1041	0.5751
168	0.0587	0.5831	0.8355	0.3409	1.0967	1.7082	0.4898
169	0.0807	0.5204	0.8358	0.4697	1.0574	2.4608	0.6200
170	0.0397	0.5689	0.8493	0.3030	1.0662	2.0389	0.4099
171	0.0431	0.5948	0.8653	0.3409	1.0877	2.4232	0.4141
172	0.0421	0.6853	0.8620	0.3106	1.0466	2.0170	0.3694
173	0.0948	0.5488	0.8589	0.5530	1.0359	2.9545	0.6487
174	0.0968	0.6817	0.8790	0.4394	1.0509	1.7208	0.5622
175	0.0346	0.7530	0.8779	0.2273	1.0761	1.2218	0.3103
176	0.0738	0.5608	0.8542	0.4394	1.0170	2.3426	0.5642
177	0.0997	0.6547	0.8541	0.4470	1.0465	1.7296	0.5881
178	0.1042	0.7531	0.8904	0.4167	1.0437	1.3925	0.5388
179	0.0863	0.5421	0.8625	0.4848	1.0382	2.4520	0.6240
180	0.0531	0.7362	0.8750	0.3258	1.0528	1.7235	0.3920
181	0.0889	0.6226	0.8484	0.4015	1.0366	1.5402	0.5759
182	0.0904	0.5207	0.8053	0.4621	1.0568	2.0893	0.6560
183	0.0574	0.5793	0.8419	0.3409	1.0966	1.7518	0.4867
184	0.0616	0.6521	0.8550	0.3485	1.0536	1.6970	0.4637
185	0.0363	0.6383	0.8337	0.2576	1.0461	1.5559	0.3613
186	0.0898	0.5606	0.8118	0.4242	1.0504	1.7319	0.6224
187	0.0992	0.6149	0.8515	0.4848	1.0390	2.0971	0.6136

188	0.0607	0.6056	0.8575	0.3333	1.0691	1.5584	0.4852
189	0.0698	0.7304	0.8777	0.3561	1.0783	1.5419	0.4524
190	0.0467	0.6578	0.8580	0.3030	1.0542	1.6924	0.4011
191	0.0828	0.5930	0.8123	0.4091	1.0564	1.7490	0.5751
192	0.0950	0.7040	0.8841	0.4242	1.0408	1.6205	0.5434
193	0.0874	0.6415	0.8571	0.4394	1.0609	1.9370	0.5587
194	0.0667	0.6825	0.8272	0.3333	1.1013	1.3929	0.4662
195	0.0520	0.7620	0.8835	0.3030	1.0325	1.4928	0.3768
196	0.0603	0.6160	0.8400	0.3409	1.0520	1.6535	0.4780
197	0.1054	0.7645	0.8865	0.4318	1.0278	1.4964	0.5350
198	0.0914	0.6832	0.8763	0.4167	1.0370	1.6257	0.5454
199	0.0517	0.5749	0.7985	0.3030	1.0914	1.5045	0.4641
200	0.0598	0.5425	0.8110	0.3636	1.0666	1.9379	0.5193

Data readout from file MC10a (Units=mm)							
No.	AREA	FORMFACT	CONVEXITY	LENGTH	FRACTAL	ASPECT	FIBER
Min	0.0127	0.4092	0.7581	0.2346	1.0121	1.1546	0.2675
Max	0.4816	0.8251	0.9223	1.0617	1.2248	4.0762	1.3915
1	0.1309	0.6724	0.8470	0.4701	1.0742	1.4148	0.6605
2	0.1199	0.7703	0.8984	0.4786	1.0121	1.6378	0.5669
3	0.1049	0.7319	0.8916	0.4359	1.0558	1.5380	0.5534
4	0.2265	0.6562	0.8658	0.6325	1.0361	1.4926	0.8849
5	0.0930	0.7036	0.8820	0.4274	1.0666	1.6906	0.5377
6	0.1705	0.7534	0.8869	0.5812	1.0244	1.7079	0.6890
7	0.0952	0.7382	0.8729	0.3761	1.0366	1.2126	0.5235
8	0.1092	0.6970	0.8406	0.4188	1.0739	1.3328	0.5870
9	0.0764	0.6727	0.8942	0.4188	1.0400	2.0222	0.5045
10	0.2174	0.6879	0.8878	0.7009	1.0238	1.9862	0.8366
11	0.0855	0.7600	0.8983	0.4017	1.0404	1.6132	0.4844
12	0.1293	0.6159	0.8577	0.5556	1.0551	2.1138	0.6999
13	0.1533	0.6131	0.8582	0.5897	1.0467	1.9950	0.7647
14	0.0725	0.7186	0.8879	0.3846	1.0318	1.7660	0.4671
15	0.1590	0.7116	0.8874	0.5641	1.0417	1.7277	0.6969

16	0.1534	0.6807	0.8786	0.5641	1.0345	1.8010	0.7085
17	0.0779	0.7127	0.8753	0.3761	1.0491	1.5429	0.4871
18	0.0929	0.7453	0.8740	0.3932	1.0392	1.3903	0.5132
19	0.2194	0.7798	0.8955	0.6325	1.0337	1.5503	0.7588
20	0.3026	0.6242	0.8485	0.7949	1.0404	1.8149	1.0605
21	0.2278	0.7242	0.8684	0.6410	1.0452	1.5308	0.8226
22	0.0885	0.7241	0.8619	0.3761	1.0748	1.3241	0.5129
23	0.0631	0.5723	0.8349	0.3590	1.0592	1.7684	0.5146
24	0.0817	0.7966	0.8961	0.3590	1.0579	1.3046	0.4543
25	0.1082	0.6543	0.8597	0.4701	1.0135	1.7693	0.6128
26	0.2081	0.7094	0.8637	0.5641	1.0262	1.2563	0.7991
27	0.1643	0.7733	0.8945	0.5641	1.0312	1.6636	0.6615
28	0.2333	0.7170	0.8876	0.6838	1.0385	1.7305	0.8391
29	0.3238	0.7069	0.8799	0.7607	1.0148	1.5136	0.9997
30	0.0589	0.6608	0.8643	0.3333	1.0583	1.6139	0.4488
31	0.0703	0.6685	0.8998	0.4188	1.0631	2.2226	0.4861
32	0.2128	0.6596	0.8532	0.6410	1.0569	1.6578	0.8544
33	0.1040	0.7140	0.8720	0.4188	1.0332	1.4140	0.5620
34	0.1792	0.6025	0.8267	0.5812	1.0796	1.6118	0.8369
35	0.0806	0.6879	0.8665	0.4017	1.0674	1.7295	0.5093
36	0.0926	0.5814	0.8641	0.4957	1.0293	2.3819	0.6165
37	0.0900	0.7612	0.9045	0.4188	1.0346	1.6756	0.4962
38	0.1128	0.6806	0.8766	0.4786	1.0511	1.7578	0.6075
39	0.0813	0.7065	0.8884	0.4017	1.0895	1.7115	0.5012
40	0.1320	0.5641	0.8373	0.5812	1.0817	2.2857	0.7516
41	0.2190	0.6238	0.8423	0.6496	1.0321	1.6534	0.9027
42	0.0665	0.7490	0.8983	0.3590	1.0451	1.6652	0.4323
43	0.0469	0.7068	0.8705	0.2906	1.1020	1.5274	0.3805
44	0.0850	0.6557	0.8574	0.4274	1.0891	1.8764	0.5422
45	0.0933	0.7187	0.8633	0.4359	1.0588	1.7636	0.5296
46	0.1023	0.7225	0.8840	0.4444	1.0335	1.6568	0.5524
47	0.0644	0.6806	0.8541	0.3504	1.0746	1.6327	0.4592
48	0.1554	0.6660	0.8836	0.5897	1.0458	1.9651	0.7248

49	0.0570	0.7437	0.8798	0.3333	1.0561	1.6768	0.4026
50	0.0709	0.6574	0.8808	0.3761	1.0551	1.7206	0.4945
51	0.0879	0.7379	0.8943	0.3932	1.0453	1.4857	0.5032
52	0.0752	0.5378	0.8831	0.4786	1.0402	2.7714	0.5858
53	0.0731	0.6354	0.8604	0.3590	1.0432	1.4908	0.5145
54	0.1101	0.6104	0.8402	0.4701	1.0675	1.7341	0.6499
55	0.3885	0.5752	0.8391	0.9145	1.0340	1.8796	1.2723
56	0.2392	0.6563	0.8346	0.6325	1.0444	1.3988	0.9093
57	0.0847	0.6903	0.8605	0.3675	1.0642	1.3221	0.5207
58	0.0764	0.7490	0.8907	0.3590	1.0605	1.4132	0.4635
59	0.1939	0.6400	0.8498	0.5897	1.0389	1.5207	0.8338
60	0.1100	0.6696	0.8863	0.5299	1.0463	2.2792	0.6075
61	0.0540	0.7549	0.8728	0.2963	1.0856	1.3539	0.3869
62	0.2184	0.8054	0.8828	0.6173	1.0247	1.4714	0.7356
63	0.2542	0.6889	0.8485	0.6420	1.0889	1.3479	0.9037
64	0.1073	0.7246	0.8869	0.4568	1.0608	1.6714	0.5643
65	0.0960	0.8039	0.8868	0.3951	1.0857	1.3522	0.4885
66	0.1558	0.6891	0.8570	0.5556	1.0516	1.7082	0.7072
67	0.1628	0.7158	0.8545	0.4938	1.0483	1.2249	0.7019
68	0.0317	0.5759	0.8461	0.2469	1.1459	1.6498	0.3631
69	0.0744	0.8056	0.8940	0.3457	1.0932	1.3333	0.4292
70	0.1521	0.7641	0.8898	0.5432	1.0303	1.6666	0.6431
71	0.2193	0.7055	0.8620	0.5926	1.0605	1.3279	0.8241
72	0.4230	0.6151	0.8442	0.9383	1.0676	1.8082	1.2670
73	0.3591	0.5891	0.8431	0.8642	1.0429	1.8066	1.2033
74	0.1120	0.7704	0.8859	0.4321	1.0386	1.3934	0.5480
75	0.1754	0.6777	0.8625	0.5679	1.0643	1.5652	0.7601
76	0.0544	0.7647	0.9009	0.3333	1.0775	1.7688	0.3843
77	0.0396	0.6271	0.8451	0.2963	1.0876	1.9421	0.3825
78	0.2804	0.5754	0.8281	0.7160	1.0638	1.5550	1.0807
79	0.0434	0.6227	0.8307	0.2963	1.0548	1.7478	0.4025
80	0.1971	0.5850	0.8341	0.6543	1.0648	1.8992	0.8957
81	0.1803	0.6608	0.8868	0.6790	1.0515	2.2838	0.7853

82	0.1536	0.8047	0.9086	0.4938	1.0260	1.3141	0.6174
83	0.1462	0.7362	0.8676	0.4938	1.0339	1.3952	0.6502
84	0.0448	0.5727	0.8093	0.3333	1.1554	2.2064	0.4334
85	0.2750	0.7037	0.8803	0.6790	1.0200	1.4036	0.9245
86	0.0823	0.6503	0.8517	0.3951	1.0324	1.6231	0.5369
87	0.1477	0.6943	0.8533	0.5556	1.0296	1.8165	0.6847
88	0.0742	0.7308	0.8852	0.3580	1.0596	1.4537	0.4661
89	0.1468	0.7193	0.8635	0.4815	1.0766	1.3062	0.6638
90	0.0127	0.4549	0.8771	0.2346	1.2248	4.0762	0.2675
91	0.1552	0.7238	0.8500	0.4938	1.0657	1.2985	0.6792
92	0.2259	0.5558	0.8358	0.7778	1.0670	2.4049	0.9930
93	0.1282	0.5173	0.8046	0.5185	1.1252	1.8243	0.7844
94	0.0812	0.7000	0.8792	0.3827	1.0961	1.5298	0.5046
95	0.0337	0.7730	0.9009	0.2593	1.1039	1.7222	0.2996
96	0.2077	0.6858	0.8669	0.5926	1.0593	1.4171	0.8197
97	0.2986	0.6435	0.8283	0.7407	1.0653	1.5644	1.0305
98	0.2480	0.7036	0.8799	0.7037	1.0260	1.7237	0.8781
99	0.3477	0.5841	0.8442	0.8765	1.0380	1.9368	1.1910
100	0.0994	0.7398	0.8932	0.4321	1.0871	1.6056	0.5339
101	0.4701	0.6592	0.8578	0.9877	1.0449	1.8020	1.2704
102	0.2695	0.6193	0.8342	0.7160	1.0739	1.6295	1.0065
103	0.1209	0.6981	0.8788	0.4815	1.0647	1.6448	0.6168
104	0.0633	0.7263	0.8615	0.3210	1.1187	1.3557	0.4324
105	0.0860	0.7786	0.9014	0.3827	1.0533	1.4307	0.4756
106	0.1439	0.6867	0.8522	0.5309	1.0975	1.6854	0.6815
107	0.1082	0.7582	0.8758	0.4198	1.0759	1.3549	0.5459
108	0.0535	0.6805	0.8695	0.2963	1.1066	1.3678	0.4185
109	0.4367	0.7369	0.8731	0.8395	1.0252	1.3407	1.1230
110	0.0832	0.7524	0.8901	0.4074	1.0638	1.7213	0.4818
111	0.1017	0.6818	0.8568	0.4321	1.0493	1.5633	0.5760
112	0.0943	0.6383	0.8425	0.4321	1.0790	1.7058	0.5827
113	0.4816	0.6322	0.8459	1.0247	1.0566	1.9068	1.3258
114	0.1168	0.7401	0.8768	0.4938	1.0762	1.8155	0.5786

115	0.2245	0.4923	0.7581	0.6296	1.0818	1.4925	1.0720
116	0.0433	0.7176	0.8650	0.2840	1.1124	1.5894	0.3612
117	0.1052	0.5967	0.8544	0.5309	1.1032	2.4065	0.6454
118	0.1329	0.7721	0.8898	0.4568	1.0722	1.2967	0.5957
119	0.3201	0.6187	0.8425	0.7901	1.0373	1.6772	1.0976
120	0.1364	0.7845	0.9020	0.5062	1.0509	1.6050	0.5952
121	0.0806	0.6867	0.8741	0.4321	1.0694	2.0425	0.5102
122	0.0453	0.5563	0.8058	0.3210	1.1267	2.0029	0.4442
123	0.1024	0.7564	0.8896	0.4568	1.0786	1.7640	0.5322
124	0.1817	0.6096	0.8484	0.6296	1.0573	1.9088	0.8357
125	0.0596	0.7857	0.8726	0.3086	1.0354	1.3252	0.3929
126	0.3736	0.6385	0.8515	0.8148	1.0789	1.5040	1.1593
127	0.2134	0.6616	0.8647	0.6667	1.0543	1.8096	0.8536
128	0.2184	0.5090	0.7975	0.6543	1.0643	1.6870	1.0348
129	0.1030	0.7044	0.8742	0.4815	1.0771	1.9768	0.5655
130	0.0701	0.6782	0.8341	0.3580	1.0585	1.5550	0.4803
131	0.0677	0.7955	0.8716	0.3333	1.0641	1.3687	0.4141
132	0.1041	0.6655	0.8718	0.4568	1.0723	1.7312	0.5936
133	0.0434	0.7799	0.8559	0.2716	1.0778	1.4250	0.3376
134	0.4251	0.5384	0.8348	1.0617	1.0333	2.3786	1.3915
135	0.1483	0.6759	0.8401	0.5062	1.0511	1.4544	0.7003
136	0.1187	0.6570	0.8602	0.4444	1.0652	1.3904	0.6400
137	0.0893	0.5909	0.8510	0.4691	1.0783	2.1909	0.5989
138	0.0482	0.7622	0.8590	0.3086	1.1074	1.7046	0.3626
139	0.2641	0.6028	0.8260	0.7037	1.1030	1.6015	1.0156
140	0.0933	0.6724	0.8416	0.4074	1.0659	1.5062	0.5576
141	0.2904	0.6423	0.8391	0.7160	1.0530	1.4926	1.0177
142	0.1504	0.6704	0.8602	0.5432	1.0508	1.6883	0.7097
143	0.2381	0.6324	0.8401	0.6420	1.0856	1.4579	0.9319
144	0.0363	0.6793	0.8440	0.2716	1.1241	1.7604	0.3450
145	0.1378	0.7731	0.8992	0.4691	1.0813	1.3241	0.6059
146	0.0709	0.7737	0.8745	0.3333	1.0975	1.2945	0.4343
147	0.1872	0.6455	0.8731	0.6420	1.0512	1.9287	0.8141

148	0.1282	0.6558	0.8586	0.4815	1.0913	1.5353	0.6659
149	0.1317	0.6632	0.8597	0.5309	1.0792	1.8668	0.6693
150	0.0736	0.6833	0.8594	0.3951	1.1061	1.8468	0.4894
151	0.1352	0.6542	0.8274	0.4938	1.0580	1.5306	0.6851
152	0.0747	0.6968	0.8723	0.3704	1.0832	1.5635	0.4856
153	0.1306	0.7039	0.8651	0.5062	1.0587	1.6883	0.6370
154	0.1215	0.7363	0.8831	0.4568	1.0660	1.4445	0.5927
155	0.0401	0.6661	0.8660	0.3086	1.1186	2.1032	0.3681
156	0.1411	0.6397	0.8526	0.5309	1.0748	1.7235	0.7116
157	0.0581	0.7089	0.8640	0.3333	1.0875	1.6401	0.4224
158	0.0689	0.7908	0.9204	0.3704	1.0530	1.7179	0.4200
159	0.0759	0.6067	0.8369	0.3951	1.0849	1.7830	0.5420
160	0.0907	0.6155	0.8438	0.4815	1.0898	2.2831	0.5864
161	0.0594	0.7610	0.8972	0.3333	1.0445	1.5960	0.4034
162	0.1139	0.7334	0.8839	0.4938	1.0466	1.8687	0.5756
163	0.0550	0.7236	0.8714	0.3210	1.1084	1.5993	0.4045
164	0.0671	0.6406	0.8396	0.3827	1.0768	1.9109	0.4900
165	0.1706	0.7673	0.8864	0.5432	1.0760	1.4569	0.6785
166	0.0491	0.7785	0.8877	0.2716	1.1294	1.2299	0.3594
167	0.1608	0.7378	0.8877	0.5926	1.0377	1.9106	0.6807
168	0.0863	0.6065	0.8126	0.4321	1.0648	1.8911	0.5779
169	0.1465	0.7484	0.8974	0.5185	1.0368	1.5623	0.6421
170	0.0634	0.6304	0.8456	0.3580	1.1657	1.7484	0.4820
171	0.0832	0.7063	0.8725	0.3827	1.0920	1.4868	0.5071
172	0.0498	0.7673	0.8882	0.3086	1.0895	1.6381	0.3668
173	0.0390	0.6803	0.8289	0.2840	1.1315	1.7932	0.3574
174	0.0864	0.4092	0.8108	0.5556	1.0782	3.2982	0.7461
175	0.0599	0.5563	0.8597	0.4074	1.0818	2.4978	0.5110
176	0.0521	0.7186	0.8922	0.3333	1.0895	1.8583	0.3959
177	0.0852	0.6489	0.8842	0.4444	1.0469	2.0452	0.5472
178	0.0712	0.7299	0.9034	0.3333	1.0847	1.2878	0.4569
179	0.0349	0.5998	0.8807	0.3457	1.0592	3.1503	0.3705
180	0.0674	0.7825	0.8902	0.3457	1.0614	1.5005	0.4192

181	0.2535	0.5863	0.8475	0.7901	1.0458	2.1898	1.0143
182	0.1608	0.6535	0.8425	0.5802	1.0368	1.8206	0.7478
183	0.0898	0.7529	0.8674	0.3580	1.0509	1.1546	0.5002
184	0.0433	0.7061	0.8440	0.2840	1.0949	1.5894	0.3658
185	0.0674	0.6708	0.8462	0.3457	1.1048	1.5005	0.4747
186	0.0474	0.6408	0.8451	0.3210	1.1087	1.9004	0.4119
187	0.0559	0.8016	0.9097	0.2963	1.0972	1.2962	0.3739
188	0.1724	0.7149	0.8582	0.5185	1.0624	1.2864	0.7230
189	0.0549	0.6950	0.8676	0.2963	1.0566	1.3268	0.4170
190	0.0587	0.7257	0.8573	0.3210	1.0791	1.4826	0.4168
191	0.0636	0.6566	0.8619	0.3827	1.0572	2.0313	0.4685
192	0.1527	0.4911	0.8244	0.6173	1.0787	2.2218	0.8854
193	0.0302	0.6796	0.8594	0.2469	1.0857	1.7470	0.3146
194	0.0797	0.8251	0.9076	0.3827	1.0237	1.5642	0.4345
195	0.0797	0.6013	0.8609	0.3827	1.0542	1.5642	0.5589
196	0.0930	0.6059	0.8268	0.3951	1.0370	1.4054	0.6004
197	0.0636	0.6731	0.8387	0.3457	1.1097	1.6069	0.4599
198	0.0768	0.8212	0.9223	0.3704	1.0280	1.5125	0.4284
199	0.0832	0.6922	0.8738	0.3951	1.0565	1.6022	0.5152
200	0.0774	0.7263	0.8640	0.3704	1.1104	1.4984	0.4784

Section D5

DIFFERENTIAL THERMAL ANALYSIS DATA

The data is given in mm above (+ve) or below (-ve) a baseline arbitrarily fitted to 20°C. The data may be converted to the original $\frac{\mu\text{F}}{\text{s}}$ or $\frac{1}{\Omega}$ scales by multiplying the absolute mm values by 1.969.

Temp (°C)	SAMPLE					
	MC6	MC20	MC27a	MC31b	MC36a	MC44
	(Height in mm above or below 20°C baseline)					
20	0	0	0	0	0	0
30	5	0	0	1	-1	-1
40	5	2	0	4	-2	-2
50	6	5	0	5	-6	-3
60	7	4	-3	8	-12	-5
70	3	1	-8	14	-20	-8
80	-12	-12	-18	0	-33	-17
90	-38	-30	-30	-39	-50	-31
100	-83	-70	-56	-93	-62	-55
110	-81	-105	-65	-121	-60	-62
120	-70	-89	-49	-88	-57	-65
130	-55	-74	-34	-62	-45	-55
140	-37	-55	-23	-40	-35	-43
150	-28	-40	-15	-27	-25	-32
160	-20	-28	-10	-17	-17	-23
170	-14	-20	-7	-12	-12	-17
180	-12	-16	-5	-10	-8	-13
190	-9	-12	-3	-7	-3	-10
200	-6	-9	-2	-5	1	-7
210	-4	-7	-1	-3	5	-5
220	-3	-5	0	-2	10	-4
230	-2	-4	1	-1	7	-2
240	-1	-3	2	-1	2	0
250	0	-2	3	0	1	0
260	0	-1	3	0	2	1
270	1	0	3	1	2	2
280	1	0	4	1	3	3
290	2	0	5	2	4	3
300	2	0	5	3	4	4
310	3	0	6	3	5	4
320	3	1	6	4	5	5
330	3	1	6	3	5	5
340	3	0	6	3	4	4
350	3	0	6	3	4	4
360	2	0	6	2	3	3
370	2	0	6	2	3	3
380	2	0	5	2	3	3
390	2	0	4	1	2	2
400	2	0	3	0	1	2
410	1	0	3	0	0	1
420	0	0	2	0	0	1
430	0	0	1	-1	0	0
440	0	0	1	-1	-1	0
450	-1	0	0	-2	-2	0
460	-1	0	0	-3	-2	-1
470	-2	0	-1	-3	-3	-2
480	-3	-1	-2	-4	-4	-2
490	-5	-3	-3	-5	-5	-5
500	-6	-4	-5	-6	-6	-6
510	-7	-6	-8	-7	-7	-7
520	-8	-6	-9	-7	-8	-8
530	-8	-7	-8	-7	-7	-7
540	-6	-5	-6	-6	-5	-5

550	-4	-4	-4	-5	-5	-3
560	-3	-3	-4	-4	-2	-1
570	-2	-2	-2	-3	-2	0
580	-1	-2	-2	-3	-1	0
590	0	-1	-1	-2	0	0
600	1	-1	0	-2	0	1
610	1	0	0	-1	0	2
620	2	0	0	-1	0	3
630	2	0	0	-1	0	3
640	3	0	1	0	0	3
650	3	0	1	0	1	3
660	3	0	1	0	1	4
670	2	1	1	0	1	4
680	1	1	1	0	1	4
690	2	0	1	0	0	4
700	3	0	1	0	-1	4
710	4	-3	1	-3	-3	4
720	5	-2	1	-7	-2	5
730	5	1	1	-5	2	5
740	5	2	1	0	3	5
750	5	2	1	1	3	5
760	5	2	1	1	4	5
770	5	2	1	2	4	5
780	5	2	1	2	4	5
790	6	2	1	2	4	5
800	6	3	0	2	4	5
810	5	3	0	2	4	5
820	5	3	0	1	4	5
830	5	3	0	1	4	5
840	5	3	0	0	3	4
850	5	3	0	0	3	4
860	5	3	0	-1	3	5
870	4	2	-1	-1	2	5
880	4	2	-2	-1	2	5
890	4	2	-2	0	1	5
900	4	2	-2	0	1	4
910	3	2		0	0	4
920	4	2		0	0	4
930	4	2		0	0	4
940	4	1		0	0	4
950	4	1		-1	0	5
960	4	1		-1	0	5
970	4	0		-2	0	5
980	4	0		-2	0	5
990	4	0		-2	0	5
1000	4	0		-2	0	5

Section D6a

X-RAY DIFFRACTION DATA: RANDOM POWDER MOUNT

The five boxes above the sample results contain ASTM characteristics of 4 significant peaks (or combination peaks) for glauconite. The first line of a box gives the strength and sharpness of the peak (or combination peak). The abbreviations used for strength are: s = strong, vw = very well developed, m = moderately well developed, w = well developed. The abbreviations for sharpness are: sh = sharp, b = broad. The next line gives the miller index for the reflector lattice position (in some cases more than one reflector comprises a single peak). The next line gives the angstrom value of the reflector maximum peak height. The final line gives the intensity of the reflector as a percent of the 2.587Å peak.

For each sample a tick indicates if the peak was present and the sharpness and development of the peak are described using the abbreviations listed above.

Sample	Random Powder Major Peak Data				
	s,sh 130,131,200 2.587 100	vw,b 112 3.09 40	m,b 003,022 3.33 60	w,b 112 3.63 40	s,sh 020 4.53 80
MC2a	√ s,b		√ s,sh	√ vw,b	√ s,sh
MC5b	√ s,sh	√ w,sh	√ vw,b	√ vw,b	√ m,sh
MC6	√ s,sh	√ vw,b	√ vw,b		√ s,sh
MC7	√ s,b		√ m,sh		√ w,b
MC9b	√ s,sh	√ vw,b	√ vw,b		√ m,sh
MC10a	√ s,sh		√ m,sh		√ w,b
MC11a	√ s,sh	√ m,b	√ vw,b		√ m,b
MC11b	√ s,sh				√ s,sh
MC13	√ s,sh		√ s,sh	√ vw,b	√ s,sh
MC14	√ s,sh	√ s,sh	√ m,sh		√ m,b
MC18	√ s,b	√ m,sh	√ m,sh	√ vw,b	√ w,b
MC19a	√ s,sh	√ s,sh			√ w,s
MC19b	√ s,b		√ vw,b		√ w,b
MC20	√ m,sh	√ s,sh	√ s,sh	√ w,b	√ s,sh
MC21	√ m,b				√ vw,b
MC24	√ s,sh	√ w,sh		√ vw,b	√ m,b
MC25a	√ s,sh	√ s,sh	√ vw,b		√ s,sh
MC25b	√ s,b	√ s,sh	√ w,sh		√ m,b
MC26	√ s,sh		√ s,sh		√ m,b
MC27a	√ s,sh		√ w,b		√ m,b
MC27c	√ s,sh		√ s,sh	√ vw,b	√ s,sh
MC28	√ s,sh		√ vw,b		√ m,b
MC29	√ s,b		√ s,sh		√ m,b
MC30	√ m,b		√ m,sh		√ w,b

MC31a	√ s,b		√ vw,b		√ s,sh
MC31b	√ s,sh	√ s,sh	√ w,sh		√ m,sh
MC31c	√ m,b	√ s,sh	√ m,sh		√ m,b
MC31d	√ s,sh	√ s,sh	√ vw,b		√ s,sh
MC32		√ s,sh	√ s,sh		√ vw,b
MC35	√ s,sh	√ s,sh	√ m,sh		√ m,b
MC36a	√ s,sh	√ s,sh	√ m,sh		√ s,sh
MC36b	√ s,sh	√ s,sh	√ s,sh		√ m,sh
MC38a	√ s,sh	√ w,sh	√ m,sh		√ m,sh
MC38b	√ s,sh	√ s,sh	√ s,sh		√ m,b
MC40	√ m,sh	√ vw,sh	√ m,sh		√ w,sh
MC44	√ s,sh		√ vw,b		√ m,b
MC45	√ s,sh		√ m,sh	√ vw,b	√ m,b

Section D6b

X-RAY DIFFRACTION DATA: ORIENTED MOUNT

The position and intensity of the 10\AA x-ray diffraction peak after various treatments to the oriented slide are shown. The presence or absence of 3 major diagnostic peaks in oriented mount traces is shown by ticks on the right side of the chart. The abbreviation n.d. (not determinable) indicates the peak was so poorly developed that it was not able to measured.

Sample N ^o	10A Airdry		10A Ethylene glycol sat.		10A heated to 300°C		10A air dry peak presence		
	peak position	peak intensity	peak position	peak intensity	peak position	peak intensity	10.1Å	4.53Å	3.3Å
MC2a	10.222	740	10.048	520	10.282	1140	√		√
MC5b	10.282	280	9.771	280	10.106	520	√	√	√
MC6	10.342	320	9.88	320	10.106	580	√	√	√
MC7	10.717	200	9.826	160	10.464	280	√	√	√
MC9b	10.717	400	10.106	300	10.222	620	√	√	√
MC10a	11.191	260	9.826	240	9.992	420	√	√	√
MC11a	10.282	280	9.718	320	9.936	440	√	√	√
MC11b	9.992	460	9.936	480	10.106	640	√	√	√
MC13	10.402	320	9.771	440	10.342	600	√	√	√
MC14	10.164	320	10.048	260	10.464	480	√		√
MC18	10.282	520	9.936	420	10.106	560	√	√	√
MC19a	10.106	320	9.612	280	10.164	620	√		√
MC19b	n.d.	n.d.	9.992	240	10.164	540			√
MC20	n.d.	n.d.	9.309	180	12.277	480			√
MC21	10.526	400	9.88	360	10.164	560	√		√
MC23	n.d.	n.d.	9.408	260	10.106	660			√
MC24	n.d.	n.d.	9.612	220	10.048	420		√	√
MC25a	n.d.	n.d.	9.459	260	10.048	600			√
MC25b	n.d.	n.d.	9.665	140	10.222	340			
MC26	10.464	860	9.936	740	10.106	1440	√	√	√
MC27a	9.992	640	9.936	440	10.106	760	√	√	√
MC27b	10.106	400	9.826	340	10.164	560	√	√	√
MC27c	10.048	240	10.048	200	10.282	320	√	√	√
MC28	10.526	660	9.936	500	10.048	920	√		√
MC29	10.222	340	9.718	280	10.282	420	√		√
MC30	10.282	660	9.992	500	10.164	860	√		√
MC31a	11.121	320	9.771	260	10.653	540	√	√	√

MC31b	11.121	320	10.048	280	10.402	800	√	√	√
MC31c	10.342	260	9.88	220	10.282	320	√	√	√
MC31d	n.d.	n.d.	9.612	240	10.282	620			√
MC35	10.342	520	9.992	460	9.992	780	√	√	√
MC36a	10.282	320	9.936	360	10.106	460	√	√	√
MC36b	10.464	480	9.826	420	10.222	560	√		√
MC38a	n.d.	n.d.	9.612	200	10.164	460	√	√	√
MC38b	10.782	340	9.826	300	10.717	580	√	√	√
MC40	11.334	300	9.826	300	10.282	500	√	√	√
MC44	10.282	1020	9.992	840	10.048	1080	√	√	√
MC45	10.106	440	9.936	440	10.164	660	√	√	√

Section D7

INFRARED AND DEGRADED ILLITE DATA

The maximum absorption position of the 9-11 μ m peak position for glauconite dispersed in KBr is listed. The percentage degraded illite calculated for selected samples is also listed (this was calculated using XRD techniques). Samples with an asterix contain statistically significant degraded illite.

Sample	Formation	Infrared Peak μm	Degraded Illite %
MC2a	P	1015	3
MC5b	TeAk	1005	
MC6	E	1025	
MC7	E	1025	
MC9b	E	1010	
MC10a	Wh	1020	3
MC11a	E	1015	
MC11b	E	1015	
MC13	Ao	1005	
MC14	E	1010	
MC18	Ao	1005	
MC19a	Or	1010	
MC19b	Ao	1020	1
MC20	Ao	1030	
MC21	Ao	1010	
MC23	Ao	1005	
MC24	Ao	1030	
MC25a	Wh	1020	1
MC25b	Wh	1025	
MC26	Ao	1010	
MC27a	Ao	985	
MC27b	Ao	990	
MC27c	Or	980	*10
MC28	Ao	975	
MC29	Or	1000	
MC30	Or	1005	7
MC31a	Wh	1020	
MC31b	Wh	1025	*11
MC31c	Wh	1030	
MC31d	Wh	1030	
MC32	Or	1020	
MC35	Ao	1005	
MC36a	Ao	1015	
MC36b	Ao	1005	
MC38a	Wh	1030	
MC38b	Wh	1025	3
MC40	Or	990	3
MC44	Ao	990	
MC45	Ao	1020	

*-significant result

Section D8

X-RAY FLUORESCENCE DATA

Sample	Formation	Si2O3 %	TiO2 %	Al2O3 %	Fe2O3 %	MnO %	MgO %	CaO %
MC05b	Te.Ak.	49.31	0.14	6.91	17.32	0.01	4.53	2.55
MC06	E	48.33	0.12	8.25	18.53	0.01	4.07	1.98
MC07	E	38.50	0.48	8.95	29.28	0.04	2.36	1.89
MC09b	E	48.00	0.07	7.86	21.36	0.01	3.38	1.09
MC10a	Wh	50.31	0.16	8.52	16.83	0.01	3.88	2.06
MC11a	E	44.72	0.07	6.94	24.56	0.03	3.44	2.00
MC11b	E	47.62	0.05	7.56	22.07	0.03	3.65	1.25
MC19a	Or	46.65	0.08	4.85	22.47	0.01	4.99	2.58
MC19b	Ao	47.97	0.16	5.11	21.29	0.02	5.17	1.31
MC20	Ao	49.58	0.14	7.88	16.39	0.01	4.09	2.48
MC21	Ao	48.64	0.09	4.94	21.95	0.01	4.99	1.60
MC23	Ao	49.86	0.07	7.10	18.36	0.01	4.06	1.73
MC24	Ao	50.07	0.07	6.98	18.49	0.01	4.13	1.65
MC25a	Wh	45.38	0.13	7.76	16.06	0.01	3.70	4.97
MC25b	Wh	46.60	0.14	7.70	15.38	0.01	3.73	5.24
MC26	Ao	49.11	0.05	4.77	22.55	0.01	5.01	0.82
MC27a	Ao	47.57	0.05	4.61	21.51	0.01	4.71	1.70
MC27c	Or	50.44	0.06	5.02	22.05	0.01	5.14	0.37
MC28	Ao	48.53	0.06	5.16	22.47	0.01	5.00	0.96
MC31b	Wh	46.13	0.18	8.57	15.86	0.02	3.57	5.17
MC31c	Wh	46.06	0.17	8.37	16.06	0.01	3.54	4.68
MC31d	Wh	47.13	0.13	8.11	16.74	0.01	3.88	3.68
MC35	Ao	46.44	0.14	7.25	20.11	0.02	3.57	3.57
MC36a	Ao	46.67	0.16	7.26	19.59	0.02	3.70	3.40
MC36b	Ao	46.32	0.15	7.49	18.88	0.02	3.43	4.16
MC38a	Wh	48.41	0.15	9.88	16.58	0.03	3.67	2.65
MC40	Or	48.51	0.10	6.02	21.11	0.01	4.18	2.62
MC44	Ao	47.86	0.14	7.90	21.49	0.02	4.18	0.36
MC45	Ao	48.99	0.18	7.27	19.97	0.03	4.32	0.84

Sample	Na ₂ O %	K ₂ O %	P ₂ O ₅ %	LOI %	Ga ppm	Pb ppm	Rb ppm	Sr ppm
MC05b	0.40	5.84	0.66	12.49	16.2	5.4	182.5	83.0
MC06	0.22	6.55	0.56	11.08	11.1	4.4	205.8	52.6
MC07	0.38	3.98	0.18	14.05	14.1	25.8	128.4	52.4
MC09b	0.25	6.83	0.06	10.88	14.9	4.3	200.9	54.6
MC10a	0.26	5.90	0.61	11.57	12.1	3.5	180.3	80.1
MC11a	0.15	6.63	0.10	11.15	9.8	7.6	204.7	16.5
MC11b	0.21	7.08	0.08	10.47	8.7	7.0	214.1	10.9
MC19a	0.13	6.41	0.27	11.74	7.5	5.5	192.6	56.2
MC19b	0.32	5.29	0.08	13.47	10.7	3.8	190.4	49.5
MC20	0.29	5.30	0.37	12.94	10.4	4.0	185.1	77.4
MC21	0.25	6.59	0.13	10.67	8.2	3.6	194.5	82.0
MC23	0.21	6.15	0.31	12.04	9.3	5.0	200.9	50.2
MC24	0.17	6.26	0.27	11.66	11.2	3.5	203.2	56.7
MC25a	0.30	4.78	0.75	15.70	10.8	3.8	175.5	98.6
MC25b	0.31	4.21	0.53	16.00	12.9	5.1	175.1	115.6
MC26	0.17	7.18	0.16	9.83	7.3	3.2	221.0	22.0
MC27a	0.19	6.73	0.16	12.25	6.7	5.3	196.6	41.8
MC27c	0.45	6.96	0.10	9.53	5.8	3.3	200.3	21.6
MC28	0.22	6.95	0.19	10.21	6.4	6.0	210.5	36.2
MC31b	0.46	4.89	0.77	14.27	10.0	3.5	180.3	135.1
MC31c	0.44	4.80	0.70	14.63	12.0	4.7	177.0	132.5
MC31d	0.28	5.01	0.67	14.14	12.5	4.5	196.3	104.3
MC35	0.40	6.04	0.54	11.80	8.1	4.7	211.6	75.8
MC36a	0.38	6.10	0.73	11.54	11.5	8.6	209.5	64.9
MC36b	0.42	5.63	0.53	12.64	10.2	9.9	201.7	81.0
MC38a	0.48	5.04	0.15	12.73	18.0	9.5	196.7	56.4
MC40	0.35	6.52	0.37	10.49	9.2	6.5	229.8	79.0
MC44	0.19	6.78	0.11	10.84	12.2	16.7	225.1	12.6
MC45	0.18	6.68	0.15	10.75	14.9	3.4	223.1	15.2

Sample	Th ppm	U ppm	Y ppm	As ppm	Sc ppm	V ppm	Cr ppm	Ba ppm
MC05b	3.7	1.8	42.9	7.7	14.2	112.1	379.6	45.1
MC06	3.5	2.8	44.1	15.6	13.6	157.3	729.8	92.3
MC07	2.8	1.8	20.7	73.1	13.6	428.7	329.0	74.5
MC09b	3.5	2.6	21.4	21.1	14.3	211.8	297.9	17.0
MC10a	3.4	4.2	39.0	9.4	13.0	107.5	431.6	24.5
MC11a	1.1	1.1	22.8	38.1	10.5	245.4	423.1	28.4
MC11b	2.1	2.0	23.6	30.8	11.7	363.7	686.6	6.2
MC19a	1.6	2.0	28.5	30.3	8.0	183.9	388.1	20.4
MC19b	0.2	0.9	19.3	9.4	11.2	97.2	276.1	26.7
MC20	1.5	1.2	34.2	8.4	16.4	95.2	313.3	27.8
MC21	2.1	0.8	24.3	9.9	10.1	92.6	378.2	13.2
MC23	3.1	1.0	33.1	7.6	13.1	84.6	330.6	10.6
MC24	1.4	1.4	32.6	8.1	16.0	86.4	334.2	16.1
MC25a	4.1	1.6	42.8	13.1	11.2	99.1	273.4	29.4
MC25b	4.6	2.0	35.8	9.2	13.1	105.7	310.8	22.6
MC26	1.2	1.7	24.8	11.9	7.9	79.6	306.3	6.5
MC27a	1.9	1.9	22.7	25.9	7.9	94.7	294.7	14.6
MC27c	0.7	0.7	22.1	10.4	9.7	80.3	334.6	12.8
MC28	0.1	2.5	27.6	20.0	11.0	89.3	324.5	2.9
MC31b	5.5	1.5	47.1	16.8	15.5	122.8	228.1	60.9
MC31c	5.4	2.5	46.0	15.6	15.1	122.0	229.4	63.0
MC31d	4.2	2.0	46.7	13.4	16.8	121.6	242.0	37.3
MC35	2.9	3.6	40.8	21.8	8.8	123.7	282.4	81.8
MC36a	2.8	4.6	42.7	14.5	9.1	117.4	531.0	84.7
MC36b	4.2	4.5	39.5	19.7	7.6	153.2	361.4	142.3
MC38a	2.5	1.7	27.2	23.9	15.6	144.1	175.6	110.1
MC40	2.7	2.4	37.8	13.7	8.2	110.9	300.3	58.7
MC44	0.8	3.5	51.0	30.6	9.4	125.0	877.7	33.4
MC45	2.1	1.0	25.1	20.6	7.4	143.6	1367.9	19.6

Sample	La ppm	Ce ppm	Ni ppm	Cu ppm	Zn ppm	Zr ppm	Nb ppm
MC05b	21.1	44.7	66.3	16.3	206.4	42.0	1.3
MC06	20.4	55.9	84.5	8.3	176.9	32.2	0.5
MC07	1.7	40.4	46.7	28.9	145.6	82.7	4.6
MC09b	15.3	77.2	24.4	11.8	104.0	34.2	1.4
MC10a	19.9	49.0	32.7	9.3	71.6	36.8	1.0
MC11a	0.0	24.7	53.9	8.9	75.8	26.7	1.6
MC11b	0.0	19.3	67.3	12.9	101.3	36.1	1.6
MC19a	4.3	34.7	30.9	9.5	88.7	20.0	1.2
MC19b	0.0	18.1	29.6	42.8	76.3	20.9	2.1
MC20	14.3	42.4	36.6	29.3	91.3	31.6	0.0
MC21	3.5	30.3	30.6	3.1	69.1	21.9	1.1
MC23	12.1	39.7	33.4	3.4	69.4	22.6	0.8
MC24	10.1	39.6	41.8	3.0	70.2	24.7	0.3
MC25a	23.1	50.1	51.6	6.0	107.7	34.7	0.4
MC25b	17.6	43.6	44.7	2.8	98.4	39.8	2.6
MC26	0.9	21.7	27.7	4.5	66.4	14.7	0.6
MC27a	0.0	22.9	31.3	21.3	70.6	15.0	0.3
MC27c	0.0	21.5	29.3	3.8	66.7	13.9	0.9
MC28	4.5	32.4	30.0	5.6	79.6	14.1	0.0
MC31b	27.6	80.3	50.0	3.9	130.9	51.1	1.5
MC31c	27.5	76.0	35.5	5.3	107.0	44.6	0.0
MC31d	25.7	70.3	41.0	6.5	124.4	45.2	0.5
MC35	13.2	44.1	67.5	4.9	102.9	40.9	0.9
MC36a	20.1	48.9	54.3	17.9	99.0	39.0	0.0
MC36b	12.4	49.6	64.6	7.9	86.2	49.6	2.2
MC38a	5.5	38.8	42.0	5.6	105.2	71.0	1.8
MC40	2.8	37.3	42.1	9.6	55.5	32.4	0.1
MC44	45.8	53.0	33.4	67.4	202.1	25.8	2.0
MC45	3.2	21.4	29.3	16.8	96.0	34.0	2.1

Section D9a

ELECTRON MICROPROBE DATA: UNMODIFIED

The analysis data listed as a weight % (wt%).

Sample	SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	MnO	MgO	CaO	Na ₂ O	K ₂ O	NiO	Cr ₂ O ₃	Cl	Total
MC1a	39.60	6.97	0.01	26.36	0.01	3.29	0.14	0.01	6.61	0.00	0.00	0.00	83.00
MC1a	36.43	6.21	0.05	28.57	0.00	2.88	0.19	0.05	6.69	0.02	0.03	0.00	81.13
MC1a	40.04	7.29	0.08	25.67	0.07	3.04	0.25	0.06	6.86	0.05	0.04	0.00	83.44
MC1a	40.35	6.40	0.00	23.79	0.01	3.36	0.13	0.09	5.41	0.01	0.04	0.02	79.60
MC1b	46.50	8.97	0.10	23.13	0.01	3.94	1.10	0.00	6.02	0.00	0.02	0.00	89.79
MC1b	45.13	7.73	0.07	23.75	0.00	3.87	1.01	0.09	6.31	0.02	0.00	0.02	88.01
MC1b	52.69	7.50	0.04	16.14	0.04	3.19	0.62	0.02	3.59	0.00	0.03	0.01	83.86
MC1b	51.56	8.10	0.15	21.92	0.04	4.46	1.68	0.03	5.25	0.00	0.04	0.01	93.22
MC1b	51.32	7.36	0.03	22.60	0.00	4.36	1.10	0.03	5.90	0.00	0.03	0.00	92.73
MC1c	45.93	9.89	0.06	22.84	0.00	3.84	0.53	0.00	6.77	0.03	0.03	0.01	89.92
MC1c	49.53	7.51	0.11	21.74	0.03	4.42	0.59	0.04	6.83	0.00	0.04	0.00	90.84
MC1c	52.12	7.80	0.09	21.61	0.06	4.54	0.44	0.03	7.51	0.00	0.01	0.00	94.20
MC1c	50.20	7.94	0.04	21.71	0.05	4.16	1.44	0.03	7.37	0.03	0.02	0.00	92.98
MC1c	50.53	8.86	0.00	22.99	0.04	4.86	0.35	0.08	7.11	0.00	0.05	0.04	94.90
MC1d	48.36	3.53	0.01	25.15	0.00	4.12	0.35	5.58	6.54	0.00	0.06	0.05	93.76
MC1d	49.81	4.01	0.00	24.09	0.00	4.81	0.28	5.49	7.03	0.00	0.08	0.02	95.62
MC1d	50.12	5.43	0.04	23.80	0.06	4.27	0.39	0.89	6.22	0.02	0.06	0.01	91.30
MC1d	45.66	4.78	0.00	20.60	0.00	4.47	0.66	5.31	8.02	0.04	0.13	0.06	89.74
MC2a	41.64	7.90	0.09	26.77	0.01	3.13	0.42	0.00	6.86	0.00	0.00	0.01	86.84
MC2a	40.57	10.22	0.10	22.14	0.01	3.17	0.53	0.04	5.89	0.03	0.01	0.01	82.72
MC2a	40.87	7.54	0.01	28.65	0.03	3.15	0.64	0.01	6.41	0.03	0.08	0.02	87.42
MC2a	49.31	8.53	0.04	24.64	0.03	3.46	0.29	0.03	7.28	0.03	0.05	0.04	93.73
MC2a	47.76	7.49	0.03	27.88	0.00	3.48	0.33	0.00	7.07	0.00	0.00	0.00	94.04
MC2b	51.13	12.09	0.04	16.23	0.00	4.00	0.62	0.00	4.79	0.01	0.00	0.00	88.91
MC2b	51.51	5.99	0.04	25.02	0.05	4.51	0.48	0.03	7.21	0.00	0.02	0.00	94.88
MC2b	50.20	8.73	0.04	20.93	0.04	4.38	0.78	0.06	6.18	0.02	0.00	0.00	91.35
MC2b	49.63	10.87	0.01	14.33	0.02	2.91	0.38	0.04	4.24	0.00	0.03	0.01	82.46
MC2b	50.46	11.65	0.17	16.47	0.00	3.85	1.45	0.06	4.56	0.00	0.08	0.00	88.74

Sample	SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	MnO	MgO	CaO	Na ₂ O	K ₂ O	NiO	Cr ₂ O ₃	Cl	Total
MC2c	50.32	9.22	0.10	22.07	0.00	4.38	1.13	0.07	6.13	0.02	0.01	0.02	93.48
MC2c	53.61	10.94	0.18	19.81	0.01	3.70	1.18	0.18	4.64	0.00	0.01	0.02	94.26
MC2c	50.48	6.54	0.01	24.75	0.04	4.13	0.56	0.06	6.19	0.00	0.07	0.00	92.83
MC2c	43.79	7.59	0.08	23.80	0.00	4.06	1.17	0.03	5.77	0.00	0.00	0.01	86.29
MC2c	49.60	7.77	0.06	23.83	0.00	4.07	1.03	0.02	6.47	0.06	0.03	0.02	92.94
MC2d	47.56	8.33	0.08	20.06	0.00	4.31	0.98	0.04	3.82	0.00	0.07	0.00	85.25
MC2d	48.07	7.87	0.14	23.24	0.00	3.63	0.61	0.05	5.07	0.00	0.14	0.03	88.84
MC2d	49.45	8.17	0.06	21.66	0.00	4.01	0.91	0.02	4.90	0.03	0.05	0.00	89.25
MC2d	53.93	11.05	0.28	17.88	0.00	4.28	2.05	0.07	3.62	0.06	0.00	0.00	93.22
MC2d	50.70	8.34	0.09	22.51	0.00	3.84	0.62	0.02	6.61	0.00	0.01	0.00	92.74
MC3	48.16	4.77	0.03	30.25	0.06	3.03	0.89	0.00	7.55	0.04	0.00	0.01	94.80
MC3	45.55	6.37	0.03	29.28	0.00	3.60	0.85	0.00	6.56	0.02	0.00	0.01	90.23
MC3	48.25	5.42	0.00	30.44	0.07	3.10	0.81	0.00	6.85	0.07	0.00	0.00	95.00
MC3	46.74	8.74	0.07	24.70	0.00	3.46	1.39	0.03	5.95	0.00	0.02	0.01	91.12
MC3	42.38	9.77	0.07	26.54	0.04	3.23	2.40	0.00	4.89	0.04	0.00	0.02	89.38
MC4a	50.91	6.33	0.07	24.17	0.03	3.35	1.46	0.01	6.93	0.00	0.03	0.02	93.30
MC4a	49.91	7.97	0.03	24.65	0.00	3.40	0.26	0.02	7.34	0.07	0.03	0.00	93.67
MC4a	47.36	6.10	0.09	25.89	0.00	3.45	0.25	0.00	7.36	0.03	0.06	0.04	90.66
MC4a	45.47	7.22	0.02	26.40	0.00	3.51	0.23	0.03	7.81	0.00	0.00	0.01	90.70
MC4a	50.81	6.45	0.06	26.27	0.00	3.40	0.25	0.03	7.46	0.01	0.00	0.00	94.74
MC4b	31.74	7.15	0.00	23.93	0.00	3.61	0.42	7.42	5.43	0.03	0.06	0.00	79.79
MC4b	30.30	7.22	0.05	25.76	0.00	3.06	0.42	0.02	6.14	0.05	0.02	0.00	73.04
MC4b	38.45	7.97	0.00	25.82	0.00	3.43	0.57	0.07	5.91	0.00	0.05	0.02	82.27
MC4b	37.52	7.07	0.02	27.20	0.00	3.03	0.87	0.03	6.97	0.06	0.07	0.00	82.84
MC4b	36.76	5.51	0.04	28.87	0.00	3.05	0.93	0.01	6.83	0.00	0.04	0.00	82.04
MC5a	52.00	10.58	0.19	18.83	0.01	4.55	0.64	0.02	5.94	0.00	0.05	0.00	92.80
MC5a	50.30	9.94	0.10	19.20	0.00	5.12	0.46	0.04	6.37	0.03	0.05	0.02	91.63
MC5a	51.98	7.78	0.02	21.13	0.00	5.10	1.21	0.08	7.36	0.00	0.10	0.01	94.77
MC5a	50.33	9.27	0.06	21.92	0.05	5.04	0.77	0.00	7.47	0.00	0.02	0.01	94.94
MC5a	51.43	9.31	0.06	21.20	0.01	4.82	1.17	0.06	6.75	0.03	0.07	0.03	94.92
MC5b	51.96	5.24	0.09	23.64	0.01	5.19	0.46	0.00	7.82	0.05	0.03	0.01	94.50
MC5b	50.41	4.50	0.02	23.02	0.09	5.23	1.92	0.07	7.43	0.06	0.07	0.01	92.82
MC5b	53.57	4.55	0.04	23.30	0.04	5.39	0.43	0.01	7.79	0.00	0.00	0.02	95.10
MC5b	50.84	9.25	0.07	21.15	0.00	4.45	0.55	0.19	7.28	0.06	0.12	0.02	93.96
MC5b	51.17	4.30	0.05	25.49	0.00	5.37	0.47	0.04	7.58	0.03	0.03	0.00	94.52

Sample	SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	MnO	MgO	CaO	Na ₂ O	K ₂ O	NiO	Cr ₂ O ₃	Cl	Total
MC6	46.14	6.05	0.04	24.34	0.01	4.24	1.06	0.00	6.58	0.03	0.07	0.00	88.55
MC6	48.67	6.78	0.04	24.52	0.01	4.59	0.86	0.02	6.96	0.00	0.03	0.00	92.47
MC6	46.99	5.22	0.03	25.06	0.01	4.19	1.78	0.07	7.41	0.01	0.03	0.02	90.80
MC6	48.26	7.07	0.06	24.17	0.00	4.30	1.07	0.09	7.35	0.06	0.03	0.00	92.46
MC7	26.21	6.57	0.02	36.76	0.01	2.74	0.41	0.03	4.43	0.00	0.01	0.00	77.18
MC7	25.84	7.45	0.04	31.08	0.00	2.46	2.51	0.10	4.56	0.00	0.00	0.00	74.04
MC7	28.57	6.53	0.02	33.04	0.08	2.63	0.53	0.01	5.33	0.02	0.02	0.00	76.79
MC7	24.42	7.07	0.09	30.97	0.02	2.73	0.48	0.03	5.50	0.00	0.01	0.02	71.33
MC8a	50.16	5.08	0.01	24.50	0.02	6.13	1.06	0.00	7.16	0.01	0.00	0.03	94.15
MC8a	48.42	2.91	0.00	27.20	0.00	5.51	0.53	0.00	7.40	0.00	0.00	0.00	91.97
MC8a	48.39	3.31	0.00	25.69	0.00	5.49	0.55	0.08	7.02	0.00	0.01	0.03	90.55
MC8a	46.58	4.87	0.00	25.81	0.00	5.45	0.70	0.02	6.27	0.00	0.10	0.01	89.81
MC8a	46.06	5.20	0.00	23.93	0.02	5.11	1.11	0.00	7.01	0.00	0.06	0.04	88.54
MC8b	49.00	5.09	0.04	29.08	0.03	3.24	0.57	0.00	6.84	0.00	0.00	0.00	93.88
MC8b	50.09	5.22	0.02	27.42	0.00	4.13	0.55	0.00	6.94	0.00	0.00	0.01	94.38
MC8b	49.33	7.16	0.11	24.62	0.01	3.81	0.81	0.00	5.93	0.02	0.00	0.00	91.79
MC8b	46.93	5.88	0.03	25.16	0.00	3.93	0.53	0.00	7.21	0.07	0.00	0.03	89.77
MC8b	49.32	5.60	0.01	26.32	0.02	3.83	0.22	0.01	7.36	0.02	0.00	0.01	92.72
MC8c	31.28	7.99	0.10	22.21	0.08	3.23	0.70	0.11	4.68	0.00	0.07	0.02	70.45
MC8c	28.60	5.06	0.04	27.56	0.00	3.88	0.27	0.07	6.49	0.00	0.00	0.01	71.97
MC9a	48.75	7.38	0.02	25.56	0.02	3.54	0.89	0.00	7.50	0.00	0.00	0.00	93.65
MC9a	47.14	6.70	0.00	25.68	0.00	3.01	0.80	0.00	6.08	0.00	0.01	0.00	89.42
MC9a	49.06	8.26	0.02	21.69	0.03	3.23	0.35	0.03	5.95	0.05	0.00	0.00	88.67
MC9a	43.94	8.10	0.05	25.29	0.00	3.18	0.91	0.00	6.78	0.02	0.05	0.00	88.31
MC9a	43.79	6.68	0.03	26.50	0.05	3.07	0.64	0.00	6.94	0.01	0.05	0.00	93.06
MC9b	52.55	9.04	0.07	21.70	0.01	3.55	1.37	0.16	5.53	0.02	0.00	0.01	93.99
MC9b	45.87	6.66	0.02	24.41	0.03	3.40	0.75	0.03	6.69	0.07	0.04	0.03	87.98
MC9b	46.11	5.21	0.03	27.83	0.00	3.57	0.66	0.01	7.81	0.00	0.00	0.02	91.26
MC9b	43.41	6.52	0.01	29.93	0.00	3.34	0.48	0.05	7.29	0.00	0.00	0.00	88.03
MC9b	44.41	5.65	0.04	27.44	0.00	3.54	0.36	0.00	7.53	0.00	0.00	0.00	88.98
MC10a	52.41	7.29	0.09	18.55	0.02	4.16	0.81	0.03	5.98	0.04	0.02	0.00	89.39
MC10a	51.85	5.19	0.00	24.06	0.00	4.64	0.65	0.03	6.51	0.00	0.02	0.00	92.95
MC10a	50.05	8.14	0.05	20.23	0.00	4.01	1.18	0.03	4.41	0.00	0.07	0.00	88.17
MC10a	50.92	5.42	0.03	25.01	0.05	4.11	0.79	0.00	5.89	0.00	0.01	0.00	92.21
MC10a	51.34	7.45	0.00	19.45	0.00	4.13	2.96	0.02	4.87	0.00	0.03	0.00	90.24

Sample	SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	MnO	MgO	CaO	Na ₂ O	K ₂ O	NiO	Cr ₂ O ₃	Cl	Total
MC10b	42.23	11.62	0.10	12.41	0.01	2.18	0.19	0.08	3.71	0.00	0.00	0.05	72.57
MC10b	48.65	8.85	0.07	23.04	0.07	3.38	0.09	0.00	7.39	0.00	0.01	0.00	91.54
MC10b	45.42	13.78	0.00	19.65	0.06	3.25	0.30	0.00	4.87	0.00	0.00	0.00	87.33
MC10b	43.89	11.56	0.14	12.98	0.02	2.62	0.00	0.07	2.51	0.06	0.00	0.00	73.85
MC10b	44.51	5.97	0.07	27.36	0.00	3.18	0.21	0.01	6.45	0.03	0.03	0.00	87.86
MC10c	50.24	7.64	0.08	24.45	0.00	3.45	0.02	0.00	7.73	0.00	0.04	0.01	93.69
MC10c	52.96	7.27	0.04	25.27	0.00	3.28	0.09	0.07	7.19	0.00	0.01	0.02	96.18
MC10c	53.86	10.08	0.03	21.76	0.00	3.14	0.07	0.00	6.91	0.03	0.06	0.16	96.10
MC10c	52.14	8.15	0.07	24.32	0.05	3.24	0.05	0.00	7.22	0.00	0.00	0.04	95.27
MC10c	52.06	7.29	0.02	25.22	0.00	3.09	0.01	0.00	7.32	0.04	0.00	0.02	95.07
MC11a	30.16	5.83	0.00	26.05	0.00	3.43	0.29	0.04	7.13	0.00	0.00	0.03	72.95
MC11a	29.66	5.21	0.07	27.01	0.01	3.37	0.85	0.03	6.15	0.00	0.02	0.00	72.37
MC11b	42.12	6.85	0.01	26.77	0.03	3.82	0.23	0.00	7.54	0.08	0.04	0.00	87.48
MC11b	42.94	6.38	0.03	26.98	0.06	3.74	0.20	0.00	8.29	0.01	0.12	0.00	88.76
MC11b	46.78	7.24	0.01	25.98	0.03	3.97	0.28	0.03	7.52	0.00	0.02	0.00	91.87
MC11b	44.53	6.33	0.04	25.67	0.02	3.78	0.15	0.00	8.10	0.00	0.10	0.01	88.72
MC11b	43.32	6.34	0.02	26.99	0.07	3.81	0.22	0.04	8.15	0.00	0.09	0.00	89.04
MC12	48.69	14.17	0.03	20.38	0.00	2.52	0.11	0.02	7.15	0.02	0.03	0.02	93.15
MC12	48.15	14.76	0.04	19.27	0.00	2.41	0.13	0.00	6.34	0.00	0.06	0.01	91.17
MC12	41.90	13.84	0.08	20.65	0.04	2.56	0.07	0.00	6.34	0.03	0.00	0.01	85.48
MC12	46.10	13.99	0.07	19.82	0.00	2.19	0.02	0.04	6.36	0.00	0.01	0.01	88.60
MC13	51.01	17.58	0.07	13.24	0.00	3.36	0.24	0.10	7.10	0.03	0.00	0.00	92.74
MC13	39.19	6.23	0.06	15.36	0.00	3.45	14.4	0.13	6.14	0.00	0.03	0.00	85.07
MC13	44.15	7.81	0.11	18.34	0.04	3.45	6.71	0.16	5.99	0.09	0.00	0.01	86.84
MC13	51.87	7.05	0.33	17.42	0.00	3.38	1.10	0.08	5.76	0.05	0.01	0.00	87.05
MC14	29.16	7.66	0.05	24.17	0.00	3.75	0.43	0.07	5.34	0.00	0.02	0.02	70.67
MC15	48.85	6.12	0.02	26.35	0.03	4.45	0.29	0.00	8.58	0.02	0.09	0.00	94.80
MC15	49.01	7.71	0.07	25.63	0.02	4.78	0.66	0.03	7.87	0.02	0.13	0.02	95.93
MC15	48.83	5.42	0.02	26.66	0.02	5.16	0.36	0.00	8.16	0.04	0.00	0.02	94.71
MC15	49.80	5.44	0.02	23.66	0.00	5.20	0.42	0.00	8.58	0.02	0.04	0.00	93.17
MC15	46.94	5.82	0.02	21.24	0.00	4.76	0.33	0.04	8.47	0.02	0.10	0.00	87.73
MC16	47.40	4.60	0.00	27.59	0.01	4.32	0.00	0.05	7.68	0.00	0.01	0.01	91.67
MC16	47.27	7.84	0.05	25.77	0.00	4.79	3.03	0.02	5.69	0.01	0.08	0.01	94.57
MC16	43.19	6.36	0.05	28.48	0.06	4.37	0.58	0.06	6.77	0.07	0.06	0.01	90.06
MC17	48.10	3.90	0.01	24.95	0.00	6.16	0.70	0.00	7.71	0.00	0.00	0.00	91.54

Sample	SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	MnO	MgO	CaO	Na ₂ O	K ₂ O	NiO	Cr ₂ O ₃	Cl	Total
MC17	47.25	4.47	0.03	27.37	0.00	5.44	0.70	0.02	7.50	0.05	0.08	0.01	92.92
MC17	50.17	3.53	0.01	25.26	0.00	5.80	1.14	0.02	7.32	0.00	0.00	0.00	93.25
MC17	45.58	4.31	0.07	26.42	0.01	5.70	0.37	0.04	7.74	0.00	0.06	0.00	90.28
MC17	49.80	4.21	0.02	26.09	0.02	5.68	0.19	0.00	8.03	0.01	0.06	0.01	94.12
MC18	47.65	4.00	0.11	26.89	0.00	4.45	0.43	0.00	8.13	0.12	0.00	0.01	91.79
MC18	50.28	4.69	0.03	24.94	0.00	5.14	0.51	0.04	8.02	0.06	0.05	0.00	93.77
MC18	50.53	8.01	0.05	22.14	0.04	4.85	0.40	0.01	8.31	0.00	0.10	0.00	94.45
MC18	49.25	7.57	0.04	23.49	0.01	4.58	1.34	0.03	7.88	0.00	0.07	0.00	94.27
MC18	48.08	6.14	0.03	23.67	0.00	4.81	1.01	0.02	7.96	0.03	0.09	0.01	91.84
MC19a	50.32	2.62	0.07	26.64	0.03	5.93	0.64	0.00	6.71	0.00	0.00	0.00	92.96
MC19a	47.97	7.96	0.00	26.97	0.00	4.44	0.75	0.00	6.69	0.03	0.04	0.01	94.87
MC19a	46.54	7.64	0.05	27.03	0.00	5.16	0.83	0.00	5.81	0.10	0.01	0.03	93.20
MC19a	46.04	6.46	0.05	21.68	0.00	4.55	1.09	0.00	6.08	0.00	0.04	0.00	85.99
MC19a	46.62	10.60	0.00	26.43	0.02	4.86	0.94	0.03	6.15	0.00	0.04	0.01	95.70
MC19b	50.81	7.96	0.07	24.84	0.00	3.83	0.44	0.02	7.83	0.00	0.10	0.00	95.88
MC19b	51.45	3.98	0.02	26.28	0.03	5.21	0.52	0.06	7.37	0.01	0.00	0.01	94.93
MC19b	52.00	3.45	0.05	26.64	0.00	5.52	0.55	0.00	7.26	0.00	0.07	0.00	95.54
MC19b	51.63	3.70	0.03	25.81	0.03	6.28	0.45	0.01	7.16	0.09	0.00	0.02	95.20
MC19b	50.43	2.39	0.00	28.19	0.00	5.34	0.21	0.00	7.94	0.00	0.03	0.00	94.53
MC20	52.58	6.10	0.05	24.18	0.02	4.40	0.27	0.05	8.16	0.00	0.14	0.06	95.99
MC20	52.00	5.30	0.00	24.82	0.01	4.32	0.84	0.00	7.96	0.08	0.00	0.00	95.33
MC20	54.46	7.02	0.02	22.03	0.07	4.64	0.53	0.00	7.43	0.00	0.07	0.02	96.28
MC20	51.98	5.17	0.07	24.86	0.00	4.20	0.28	0.00	8.21	0.07	0.06	0.00	94.89
MC20	50.86	7.35	0.03	21.73	0.05	4.24	1.30	0.02	7.35	0.00	0.00	0.01	92.94
MC21	49.72	3.35	0.04	27.13	0.00	4.77	0.50	0.00	7.89	0.00	0.05	0.00	93.45
MC21	50.13	3.00	0.04	27.09	0.01	4.89	0.57	0.00	7.88	0.05	0.00	0.02	93.67
MC21	50.81	3.88	0.02	26.87	0.01	5.22	0.88	0.00	6.67	0.00	0.01	0.02	94.38
MC21	50.77	4.47	0.03	25.30	0.02	4.73	0.78	0.00	7.24	0.08	0.00	0.00	93.41
MC21	49.41	3.77	0.02	25.01	0.01	4.72	0.66	0.02	7.35	0.01	0.00	0.01	90.96
MC22	43.51	7.26	0.03	24.79	0.04	5.13	0.36	0.05	6.43	0.00	0.00	0.02	87.62
MC22	40.87	9.91	0.04	21.50	0.00	7.93	1.06	0.05	4.56	0.02	0.07	0.00	86.02
MC22	38.81	8.03	0.01	23.21	0.02	4.64	0.39	0.05	4.75	0.01	0.05	0.03	79.99
MC22	44.25	10.15	0.08	21.98	0.00	5.67	0.63	0.05	5.03	0.03	0.10	0.00	87.96
MC22	52.42	8.98	0.00	23.22	0.00	5.21	0.50	0.02	6.52	0.03	0.03	0.00	96.95
MC22	35.51	8.28	0.19	18.64	0.00	3.85	0.78	0.01	4.04	0.03	0.03	0.01	71.37

Sample	SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	MnO	MgO	CaO	Na ₂ O	K ₂ O	NiO	Cr ₂ O ₃	Cl	Total
MC23	52.92	5.12	0.00	24.47	0.03	4.50	0.59	0.03	7.96	0.03	0.02	0.02	95.66
MC23	52.18	6.79	0.04	21.47	0.00	4.24	0.70	0.04	7.31	0.00	0.02	0.03	92.80
MC23	52.56	4.46	0.00	25.15	0.04	4.10	0.54	0.00	7.09	0.00	0.07	0.00	94.02
MC23	52.15	2.58	0.04	22.48	0.00	4.20	0.00	0.00	7.73	0.00	0.06	0.02	89.26
MC23	53.71	6.16	0.03	22.71	0.06	4.30	0.76	0.09	7.50	0.00	0.10	0.04	95.45
MC23	53.91	7.52	0.00	21.23	0.00	4.01	0.67	0.02	5.48	0.00	0.01	0.00	92.87
MC24	54.14	5.40	0.04	23.99	0.03	4.35	0.40	0.04	7.15	0.00	0.00	0.00	95.55
MC24	52.48	4.81	0.00	25.23	0.01	4.31	0.37	0.01	7.43	0.00	0.02	0.02	94.69
MC24	53.36	5.04	0.01	24.19	0.02	4.35	0.35	0.00	7.68	0.05	0.04	0.00	95.09
MC24	52.15	3.40	0.03	27.01	0.07	4.24	0.41	0.06	8.06	0.01	0.03	0.00	95.46
MC24	52.19	4.78	0.06	24.83	0.05	4.18	0.38	0.04	7.72	0.04	0.04	0.01	94.30
MC24	56.10	5.82	0.05	23.73	0.00	4.72	0.33	0.02	7.70	0.01	0.06	0.00	98.54
MC24	53.34	5.35	0.03	23.91	0.00	4.22	0.33	0.01	7.99	0.00	0.07	0.00	95.26
MC24	54.72	5.02	0.04	24.82	0.00	4.49	0.38	0.01	7.75	0.00	0.00	0.00	97.21
MC24	55.28	7.67	0.07	22.11	0.00	4.27	0.51	0.03	7.41	0.00	0.05	0.03	97.41
MC25a	46.69	6.66	0.04	23.92	0.00	4.15	1.32	0.00	5.49	0.00	0.04	0.00	88.31
MC25a	39.92	9.33	0.62	13.65	0.00	3.82	2.09	0.05	1.76	0.01	0.08	0.00	71.31
MC25a	39.10	17.49	0.07	11.77	0.02	2.83	1.99	0.00	2.10	0.04	0.05	0.04	75.49
MC25a	44.78	8.82	0.13	16.06	0.01	3.87	1.82	0.06	3.01	0.04	0.06	0.03	78.67
MC25a	49.61	9.25	0.01	22.91	0.08	3.95	0.89	0.00	6.32	0.03	0.03	0.01	93.09
MC25b	49.46	8.43	0.10	16.94	0.00	3.74	1.61	0.02	3.64	0.06	0.02	0.00	84.01
MC25b	40.97	9.67	0.00	15.11	0.00	2.47	1.29	1.06	4.25	0.00	0.02	0.00	74.84
MC26	51.09	3.70	0.01	27.61	0.00	5.44	0.54	0.06	7.24	0.00	0.06	0.00	95.74
MC26	49.72	4.99	0.04	25.24	0.02	4.79	0.35	0.00	7.18	0.03	0.06	0.00	92.41
MC26	46.54	4.48	0.04	26.62	0.00	4.93	1.29	0.01	6.80	0.10	0.07	0.02	90.90
MC26	53.79	4.38	0.00	26.34	0.04	5.44	0.76	0.00	5.83	0.03	0.00	0.00	96.61
MC27a	47.69	2.59	0.07	27.27	0.07	4.95	0.22	0.00	7.04	0.00	0.00	0.03	90.23
MC27a	49.95	2.17	0.00	27.45	0.00	5.72	0.56	0.00	8.20	0.00	0.00	0.00	94.04
MC27a	48.06	3.50	0.09	28.85	0.09	4.75	1.07	0.01	7.50	0.00	0.01	0.08	94.00
MC27a	49.55	5.50	0.00	23.43	0.00	4.89	0.30	0.00	7.15	0.00	0.01	0.02	90.84
MC27a	49.43	3.09	0.00	28.42	0.00	4.97	0.38	0.01	7.70	0.02	0.04	0.04	94.11
MC27a	48.89	3.38	0.06	29.78	0.01	4.46	0.88	0.01	7.42	0.00	0.00	0.11	95.00
MC27b	52.12	3.16	0.00	26.87	0.05	5.21	0.24	0.03	8.50	0.00	0.07	0.00	96.25
MC27b	50.21	2.36	0.03	30.06	0.00	5.34	0.36	0.06	7.70	0.00	0.02	0.00	96.14
MC27b	50.67	3.42	0.02	27.02	0.04	5.04	0.63	0.02	7.94	0.00	0.00	0.01	94.82

Sample	SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	MnO	MgO	CaO	Na ₂ O	K ₂ O	NiO	Cr ₂ O ₃	Cl	Total
MC27b	44.50	3.24	0.04	24.12	0.03	4.50	7.29	0.07	7.22	0.01	0.06	0.00	91.06
MC27b	50.81	3.97	0.04	27.12	0.05	4.93	0.19	0.00	8.54	0.04	0.07	0.00	95.75
MC27c	48.08	4.68	0.06	25.00	0.01	4.75	0.18	0.03	6.51	0.00	0.07	0.04	89.40
MC27c	50.52	3.47	0.06	27.16	0.00	5.04	0.18	0.02	6.98	0.00	0.01	0.08	93.51
MC27c	45.66	3.33	0.04	26.85	0.00	5.29	0.19	0.00	7.94	0.04	0.10	0.04	89.45
MC27c	46.35	3.18	0.00	23.83	0.00	4.96	0.50	0.00	6.88	0.06	0.02	0.04	85.81
MC27c	50.52	2.97	0.01	27.54	0.00	5.28	0.29	0.01	7.35	0.00	0.00	0.05	94.02
MC27d	52.44	11.38	1.83	16.24	0.02	3.72	0.28	1.12	4.13	0.00	0.01	0.02	91.19
MC27d	49.89	5.57	0.03	23.62	0.02	5.13	0.35	0.00	5.99	0.01	0.00	0.03	90.64
MC27d	49.46	6.51	0.12	21.15	0.04	5.01	0.81	0.00	5.32	0.00	0.00	0.00	88.41
MC27d	48.12	5.14	0.06	24.19	0.02	4.33	1.48	0.07	3.63	0.02	0.03	0.43	87.52
MC27d	48.15	6.13	0.05	21.44	0.04	5.61	0.35	0.05	5.84	0.00	0.02	0.05	87.73
MC27e	49.14	6.35	0.11	23.36	0.00	5.69	0.28	0.08	6.15	0.00	0.11	0.01	91.30
MC27e	43.60	6.45	0.08	24.18	0.00	4.86	2.16	0.04	5.16	0.01	0.03	0.01	86.57
MC27e	49.01	6.46	0.08	23.37	0.02	5.83	1.20	0.05	5.47	0.00	0.11	0.01	91.60
MC27e	44.63	6.49	0.08	21.39	0.04	5.17	0.25	0.03	5.62	0.01	0.05	0.00	83.77
MC27e	48.64	6.79	0.11	23.37	0.01	5.58	2.15	0.03	4.90	0.00	0.10	0.00	91.68
MC28	48.75	2.78	0.02	28.68	0.02	5.33	0.45	0.12	7.58	0.02	0.00	0.00	93.74
MC28	49.41	3.83	0.02	27.51	0.02	5.02	1.13	0.02	6.78	0.00	0.00	0.00	93.73
MC28	49.92	3.69	0.00	29.33	0.00	4.53	0.33	0.00	7.81	0.03	0.00	0.02	95.66
MC28	48.57	2.94	0.00	28.71	0.07	5.22	0.31	0.02	7.48	0.00	0.04	0.01	93.34
MC28	50.61	2.76	0.01	27.92	0.00	4.91	0.30	0.00	8.32	0.00	0.00	0.00	94.83
MC29	40.35	7.96	0.11	28.05	0.00	5.36	4.84	0.00	4.11	0.01	0.05	0.14	90.98
MC29	42.09	7.35	0.00	27.88	0.01	5.50	3.28	0.04	5.01	0.00	0.03	0.03	91.22
MC29	41.35	6.44	0.01	26.25	0.01	4.74	4.71	0.05	5.52	0.00	0.09	0.06	89.23
MC29	47.89	7.35	0.07	24.71	0.04	5.70	0.38	0.11	6.20	0.00	0.08	0.00	92.52
MC29	38.35	6.35	0.00	24.97	0.00	3.95	0.65	0.07	5.36	0.05	0.07	0.07	79.89
MC30	46.28	6.89	0.01	26.56	0.00	4.83	0.77	0.00	5.61	0.00	0.03	0.02	90.97
MC30	47.83	7.09	0.03	27.50	0.02	5.06	0.95	0.00	6.51	0.06	0.04	0.01	95.10
MC30	45.58	7.90	0.03	28.06	0.00	4.81	0.62	0.07	6.58	0.08	0.01	0.02	93.75
MC30	43.29	6.12	0.00	29.42	0.07	5.58	0.78	0.00	5.88	0.00	0.00	0.00	91.15
MC30	50.78	4.05	0.00	25.41	0.01	3.94	0.41	0.03	7.86	0.00	0.12	0.02	92.64
MC31a	53.68	5.85	0.08	24.51	0.03	4.25	1.30	0.04	7.38	0.00	0.10	0.03	97.25
MC31a	52.28	6.11	0.04	24.33	0.04	4.30	0.78	0.00	7.04	0.04	0.12	0.03	95.11
MC31a	47.78	4.86	0.00	26.90	0.02	4.32	0.86	0.00	7.56	0.00	0.05	0.01	92.36

Sample	SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	MnO	MgO	CaO	Na ₂ O	K ₂ O	NiO	Cr ₂ O ₃	Cl	Total
MC31a	54.34	5.87	0.00	19.90	0.00	3.73	1.20	0.00	4.93	0.01	0.01	0.01	89.68
MC31b	51.84	5.66	0.00	24.24	0.00	4.16	0.76	0.05	7.36	0.04	0.06	0.05	94.24
MC31b	43.39	9.75	0.11	26.57	0.06	5.84	1.63	0.00	4.57	0.00	0.06	0.00	91.97
MC31b	50.40	4.53	0.13	26.83	0.07	4.62	0.78	0.00	7.46	0.02	0.00	0.00	94.82
MC31b	40.65	4.14	0.04	21.95	0.04	3.50	11.1	0.16	5.70	0.00	0.00	0.01	87.29
MC31b	49.83	6.13	0.03	25.11	0.02	4.31	1.06	0.00	5.83	0.07	0.02	0.01	92.41
MC31b	47.12	7.24	0.13	24.12	0.03	4.10	1.06	0.01	5.77	0.12	0.13	0.02	89.86
MC31b	51.51	12.56	0.12	19.90	0.06	3.30	1.20	0.00	5.42	0.12	0.00	0.00	94.19
MC31c	47.74	6.25	0.03	24.17	0.00	3.81	1.09	0.04	6.53	0.02	0.00	0.00	89.68
MC31c	51.83	7.47	0.04	21.55	0.00	3.97	1.25	0.00	6.21	0.03	0.00	0.01	92.36
MC31c	50.09	5.44	0.05	25.36	0.00	4.19	0.93	0.00	6.24	0.08	0.00	0.00	92.38
MC31c	50.82	5.42	0.00	25.16	0.04	4.03	0.81	0.00	6.51	0.00	0.03	0.00	92.83
MC31c	47.75	6.38	0.10	20.81	0.00	3.61	1.68	0.14	4.03	0.00	0.00	0.00	84.49
MC31d	49.21	7.39	0.04	18.46	0.00	3.29	0.69	0.06	4.68	0.00	0.00	0.01	83.82
MC31d	63.92	9.49	0.05	16.49	0.02	3.04	1.17	0.86	3.75	0.00	0.03	0.01	98.83
MC31d	44.30	4.63	0.03	23.42	0.03	3.60	6.17	0.19	5.45	0.04	0.01	0.04	87.90
MC31d	47.42	6.32	0.07	20.93	0.00	3.87	1.20	0.05	4.60	0.03	0.07	0.00	84.56
MC31d	48.61	7.38	0.00	19.96	0.00	3.97	2.27	0.01	5.57	0.00	0.04	0.02	87.81
MC32	38.20	11.79	0.04	31.27	0.01	5.83	1.14	0.05	2.35	0.00	0.13	0.00	90.81
MC32	35.29	11.97	0.05	28.48	0.00	8.01	3.80	0.11	1.89	0.01	0.19	0.04	89.84
MC32	47.03	5.92	0.01	30.24	0.00	4.91	0.51	0.02	7.06	0.06	0.03	0.00	95.80
MC32	52.81	2.79	0.01	27.63	0.00	4.90	0.13	0.00	8.15	0.00	0.00	0.02	96.45
MC33	50.48	14.32	1.31	16.71	0.01	3.27	0.78	0.06	4.18	0.03	0.02	0.02	91.17
MC33	51.11	9.91	0.03	19.78	0.03	3.49	2.65	0.00	4.45	0.03	0.02	0.02	91.51
MC33	46.74	9.09	0.63	21.39	0.08	6.28	1.20	0.00	4.91	0.03	0.00	0.02	90.38
MC33	47.15	10.23	0.10	19.23	0.00	3.49	2.23	0.00	4.03	0.03	0.07	0.07	86.62
MC33	48.02	7.01	0.00	23.95	0.03	4.17	1.11	0.03	5.91	0.01	0.05	0.01	90.30
MC35	47.23	5.59	0.00	26.49	0.00	3.88	1.25	0.49	7.16	0.00	0.00	0.01	92.10
MC35	43.88	3.48	0.00	26.27	0.00	3.57	2.17	0.32	7.34	0.00	0.00	0.00	87.03
MC35	52.32	5.58	0.03	28.54	0.02	4.00	0.55	0.04	7.67	0.00	0.05	0.00	98.79
MC35	47.56	7.68	0.09	21.84	0.02	3.87	0.39	0.06	5.53	0.09	0.02	0.04	87.19
MC36a	26.86	3.60	0.03	15.22	0.00	2.15	24.40	0.09	3.61	0.00	0.01	0.00	75.99
MC36a	37.11	3.51	1.44	19.55	0.00	2.61	17.44	0.27	5.39	0.08	0.00	0.00	87.41
MC36a	35.58	3.79	0.06	21.03	0.01	3.09	15.97	0.15	5.88	0.01	0.01	0.00	85.56
MC36a	38.98	4.21	0.07	18.84	0.01	2.71	13.81	0.10	4.86	0.01	0.00	0.00	83.60

Sample	SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	MnO	MgO	CaO	Na ₂ O	K ₂ O	NiO	Cr ₂ O ₃	Cl	Total
MC36b	43.71	3.61	0.00	24.71	0.02	4.05	1.58	0.00	7.89	0.03	0.00	0.02	85.62
MC36b	42.44	3.87	0.01	25.88	0.00	3.95	1.27	0.08	8.18	0.00	0.02	0.00	85.70
MC37	45.15	16.21	1.36	21.42	0.07	3.16	0.62	0.22	5.21	0.00	0.06	0.00	93.46
MC37	38.08	17.55	0.82	24.45	0.04	4.30	1.18	0.44	3.47	0.06	0.03	0.01	90.42
MC37	47.89	11.92	0.12	24.10	0.04	3.09	0.69	0.08	6.30	0.04	0.02	0.02	94.31
MC37	44.21	11.99	1.26	22.45	0.02	2.95	0.70	0.14	5.82	0.00	0.03	0.01	89.57
MC37	44.88	14.95	0.08	19.04	0.03	2.99	1.33	0.05	5.54	0.05	0.03	0.01	88.97
MC38a	51.39	9.74	0.00	23.12	0.00	4.13	1.26	0.44	5.36	0.00	0.00	0.00	95.43
MC38a	50.50	10.53	0.27	18.01	0.05	4.22	1.53	0.04	4.12	0.00	0.00	0.03	89.30
MC38a	30.56	3.66	0.09	14.60	0.01	2.56	24.7	0.74	3.62	0.01	0.00	0.01	80.58
MC38a	53.14	14.05	0.03	17.25	0.01	3.75	0.83	0.05	6.64	0.01	0.00	0.02	95.78
MC38a	53.13	10.52	0.05	18.04	0.00	4.30	1.45	0.00	4.74	0.00	0.00	0.02	92.24
MC38b	46.23	7.08	0.02	24.97	0.04	4.02	1.34	0.00	5.12	0.00	0.07	0.05	88.92
MC38b	50.75	9.00	0.04	21.65	0.00	3.95	1.59	0.07	5.42	0.00	0.00	0.00	92.46
MC38b	50.03	12.19	0.06	22.42	0.04	4.73	0.85	0.03	4.35	0.01	0.01	0.00	94.72
MC38b	47.87	5.27	0.06	26.98	0.07	4.74	1.28	0.00	4.89	0.00	0.04	0.03	91.21
MC38b	55.04	11.19	0.13	13.58	0.02	3.29	0.79	0.15	3.48	0.07	0.04	0.01	87.79
MC39a	53.22	14.18	0.11	22.04	0.05	4.70	2.32	0.47	2.53	0.00	0.01	0.02	99.65
MC39a	38.99	13.98	0.04	26.34	0.00	4.87	2.78	0.10	2.37	0.00	0.04	0.00	89.51
MC39a	33.88	10.94	0.08	25.38	0.00	4.94	0.78	0.08	2.43	0.02	0.00	0.00	78.54
MC39a	40.45	14.35	0.31	28.92	0.00	6.08	1.30	0.02	2.02	0.04	0.01	0.00	93.50
MC39b	52.81	9.88	0.21	23.01	0.02	4.97	1.08	0.04	5.65	0.01	0.02	0.00	97.71
MC39b	52.44	3.17	0.03	27.15	0.05	5.58	0.43	0.00	7.77	0.06	0.00	0.02	96.68
MC39b	53.59	9.60	0.06	23.82	0.08	4.85	1.00	0.01	6.13	0.10	0.05	0.00	99.29
MC39b	49.36	7.69	0.07	23.52	0.09	4.32	0.78	0.33	6.31	0.04	0.00	0.03	92.52
MC40	46.77	4.65	0.00	26.77	0.00	4.68	0.46	0.06	7.37	0.03	0.09	0.00	90.89
MC40	38.30	8.24	0.07	29.44	0.00	6.40	1.56	0.01	3.50	0.04	0.16	0.00	87.71
MC40	38.75	8.34	0.05	28.40	0.03	5.39	0.84	0.08	3.83	0.01	0.05	0.05	85.79
MC40	42.73	6.48	0.04	27.34	0.01	4.32	1.04	0.06	5.75	0.02	0.10	0.71	88.61
MC41	37.74	7.99	0.00	23.82	0.02	4.73	0.41	0.00	6.14	0.06	0.07	0.00	80.97
MC41	33.13	12.77	0.00	24.67	0.02	6.11	1.30	0.88	3.36	0.00	0.09	0.01	82.35
MC41	31.89	6.05	0.00	25.36	0.00	3.67	0.83	6.58	5.84	0.00	0.03	0.02	80.27
MC41	40.04	7.87	0.04	26.78	0.03	4.76	0.34	0.03	6.17	0.00	0.15	0.03	86.22
MC41	42.03	7.97	0.00	24.64	0.00	4.87	0.51	5.07	4.63	0.00	0.05	0.01	89.76
MC42	51.38	8.82	0.08	23.13	0.01	4.56	0.96	0.11	6.53	0.02	0.01	0.00	95.60

Sample	SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	MnO	MgO	CaO	Na ₂ O	K ₂ O	NiO	Cr ₂ O ₃	Cl	Total
MC42	50.38	7.45	0.01	23.84	0.04	4.65	0.95	0.03	6.87	0.00	0.09	0.00	94.29
MC42	45.19	7.11	0.04	22.70	0.06	4.07	0.95	0.05	6.20	0.01	0.08	0.23	86.68
MC42	47.97	8.93	0.34	22.84	0.01	3.68	0.99	0.03	6.17	0.00	0.00	0.00	90.97
MC42	49.88	6.86	0.04	23.81	0.06	4.87	1.11	0.06	5.88	0.02	0.07	0.02	92.68
MC43	36.94	17.23	3.48	19.77	1.98	5.22	1.87	0.00	2.98	0.00	0.00	0.00	89.46
MC43	47.47	16.51	0.06	15.35	0.05	4.05	0.90	0.18	4.91	0.05	0.06	0.01	89.58
MC43	28.78	15.88	0.23	26.14	0.10	5.31	7.46	0.03	1.18	0.04	0.05	0.01	85.21
MC43	51.38	7.82	0.05	24.25	0.00	4.34	0.70	0.00	6.86	0.02	0.00	0.01	95.43
MC43	50.83	7.59	0.05	24.70	0.05	4.42	0.59	0.00	6.96	0.00	0.07	0.00	95.26
MC44	48.59	4.92	0.00	28.70	0.00	4.27	0.06	0.06	8.00	0.00	0.00	0.02	94.61
MC44	50.63	5.05	0.00	24.47	0.00	4.80	0.13	0.00	8.17	0.06	0.04	0.01	93.35
MC44	51.36	5.05	0.00	25.94	0.00	4.77	0.16	0.00	8.06	0.03	0.00	0.00	95.36
MC44	49.25	6.11	0.00	25.99	0.00	4.00	0.20	0.06	7.92	0.00	0.03	0.00	93.57
MC44	51.79	3.93	0.00	26.36	0.06	5.44	0.07	0.03	8.37	0.00	0.00	0.00	96.05
MC45	52.67	6.75	0.02	22.21	0.00	4.99	0.51	0.01	7.50	0.02	0.00	0.01	94.69
MC45	52.05	4.93	0.00	24.70	0.01	5.01	0.35	0.02	8.30	0.00	0.04	0.00	95.42
MC45	33.80	20.01	0.03	21.52	0.02	2.85	0.99	0.09	5.08	0.00	0.07	0.00	84.45
MC45	52.60	7.55	0.06	23.74	0.00	5.06	0.39	0.01	7.17	0.04	0.00	0.00	96.63
MC45	51.29	4.33	0.01	25.72	0.00	4.62	0.26	0.01	8.05	0.00	0.05	0.00	94.33

Section D9b

ELECTRON MICROPROBE DATA: NORMALISED

The data has been normalised to a 91.68 wt% return for all samples.

Sample	SiO ₂ wt %	Al ₂ O ₃ wt %	TiO ₂ wt %	Fe ₂ O ₃ wt %	MnO wt %	MgO wt %	CaO wt %	Na ₂ O wt %
MC1a	43.74	7.70	0.01	29.12	0.01	3.63	0.15	0.01
MC1a	41.17	7.02	0.06	32.29	0.00	3.25	0.21	0.06
MC1a	43.99	8.01	0.09	28.21	0.08	3.34	0.27	0.07
MC1a	46.47	7.37	0.00	27.40	0.01	3.87	0.15	0.10
MC2a	43.96	8.34	0.10	28.26	0.01	3.30	0.44	0.00
MC2a	44.96	11.33	0.11	24.54	0.01	3.51	0.59	0.04
MC2a	42.86	7.91	0.01	30.05	0.03	3.30	0.67	0.01
MC2a	48.23	8.34	0.04	24.10	0.03	3.38	0.28	0.03
MC2a	46.56	7.30	0.03	27.18	0.00	3.39	0.32	0.00
MC4a	50.03	6.22	0.07	23.75	0.03	3.29	1.43	0.01
MC4a	48.85	7.80	0.03	24.13	0.00	3.33	0.25	0.02
MC4a	47.89	6.17	0.09	26.18	0.00	3.49	0.25	0.00
MC4a	49.17	6.24	0.06	25.42	0.00	3.29	0.24	0.03
MC4a	45.96	7.30	0.02	26.69	0.00	3.55	0.23	0.03
MC8a	48.84	4.95	0.01	23.86	0.02	5.97	1.03	0.00
MC8a	48.27	2.90	0.00	27.11	0.00	5.49	0.53	0.00
MC8a	48.99	3.35	0.00	26.01	0.00	5.56	0.56	0.08
MC8a	47.55	4.97	0.00	26.35	0.00	5.56	0.71	0.02
MC8a	47.69	5.38	0.00	24.78	0.02	5.29	1.15	0.00
MC10b	53.35	14.68	0.13	15.68	0.01	2.75	0.24	0.10
MC10b	48.72	8.86	0.07	23.08	0.07	3.39	0.09	0.00
MC10b	47.68	14.47	0.00	20.63	0.06	3.41	0.31	0.00
MC10b	54.49	14.35	0.17	16.11	0.02	3.25	0.00	0.09
MC10b	46.45	6.23	0.07	28.55	0.00	3.32	0.22	0.01
MC10c	49.16	7.48	0.08	23.93	0.00	3.38	0.02	0.00
MC10c	50.48	6.93	0.04	24.09	0.00	3.13	0.09	0.07
MC10c	51.38	9.62	0.03	20.76	0.00	3.00	0.07	0.00
MC10c	50.18	7.84	0.07	23.40	0.05	3.12	0.05	0.00
MC10c	50.20	7.03	0.02	24.32	0.00	2.98	0.01	0.00
MC12	47.92	13.95	0.03	20.06	0.00	2.48	0.11	0.02
MC12	48.42	14.84	0.04	19.38	0.00	2.42	0.13	0.00
MC12	44.94	14.84	0.09	22.15	0.04	2.75	0.08	0.00

MC12	47.70	14.48	0.07	20.51	0.00	2.27	0.02	0.04
MC2b	52.72	12.47	0.04	16.74	0.00	4.12	0.64	0.00
MC2b	49.77	5.79	0.04	24.18	0.05	4.36	0.46	0.03
MC2b	50.38	8.76	0.04	21.01	0.04	4.40	0.78	0.06
MC2b	55.18	12.09	0.01	15.93	0.02	3.24	0.42	0.04
MC2b	52.13	12.04	0.18	17.02	0.00	3.98	1.50	0.06
MC8b	47.85	4.97	0.04	28.40	0.03	3.16	0.56	0.00
MC8b	48.66	5.07	0.02	26.64	0.00	4.01	0.53	0.00
MC8b	49.27	7.15	0.11	24.59	0.01	3.81	0.81	0.00
MC8b	47.93	6.01	0.03	25.70	0.00	4.01	0.54	0.00
MC8b	48.77	5.54	0.01	26.02	0.02	3.79	0.22	0.01
MC9a	47.72	7.22	0.02	25.02	0.02	3.47	0.87	0.00
MC9a	48.33	6.87	0.00	26.33	0.00	3.09	0.82	0.00
MC9a	50.73	8.54	0.02	22.43	0.03	3.34	0.36	0.03
MC9a	45.62	8.41	0.05	26.26	0.00	3.30	0.94	0.00
MC9a	43.14	6.58	0.03	26.11	0.05	3.02	0.63	0.00
MC1b	47.48	9.16	0.10	23.62	0.01	4.02	1.12	0.00
MC1b	47.01	8.05	0.07	24.74	0.00	4.03	1.05	0.09
MC1b	57.60	8.20	0.04	17.65	0.04	3.49	0.68	0.02
MC1b	50.71	7.97	0.15	21.56	0.04	4.39	1.65	0.03
MC1b	50.74	7.28	0.03	22.34	0.00	4.31	1.09	0.03
MC2c	49.35	9.04	0.10	21.65	0.00	4.30	1.11	0.07
MC2c	52.14	10.64	0.18	19.27	0.01	3.60	1.15	0.18
MC2c	49.85	6.46	0.01	24.44	0.04	4.08	0.55	0.06
MC2c	46.53	8.06	0.08	25.29	0.00	4.31	1.24	0.03
MC2c	48.93	7.66	0.06	23.51	0.00	4.01	1.02	0.02
MC3	46.57	4.61	0.03	29.25	0.06	2.93	0.86	0.00
MC3	46.28	6.47	0.03	29.75	0.00	3.66	0.86	0.00
MC3	46.56	5.23	0.00	29.38	0.07	2.99	0.78	0.00
MC3	47.03	8.79	0.07	24.85	0.00	3.48	1.40	0.03
MC3	43.47	10.02	0.07	27.22	0.04	3.31	2.46	0.00
MC4b	36.47	8.22	0.00	27.50	0.00	4.15	0.48	8.53
MC4b	38.03	9.06	0.06	32.33	0.00	3.84	0.53	0.03
MC4b	42.85	8.88	0.00	28.77	0.00	3.82	0.64	0.08

MC4b	41.52	7.82	0.02	30.10	0.00	3.35	0.96	0.03
MC4b	41.08	6.16	0.04	32.26	0.00	3.41	1.04	0.01
MC6	47.77	6.26	0.04	25.20	0.01	4.39	1.10	0.00
MC6	48.25	6.72	0.04	24.31	0.01	4.55	0.85	0.02
MC6	47.45	5.27	0.03	25.30	0.01	4.23	1.80	0.07
MC6	47.85	7.01	0.06	23.97	0.00	4.26	1.06	0.09
MC7	31.13	7.80	0.02	43.67	0.01	3.25	0.49	0.04
MC7	32.00	9.22	0.05	38.48	0.00	3.05	3.11	0.12
MC7	34.11	7.80	0.02	39.45	0.10	3.14	0.63	0.01
MC7	31.39	9.09	0.12	39.81	0.03	3.51	0.62	0.04
MC8c	40.71	10.40	0.13	28.90	0.10	4.20	0.91	0.14
MC8c	36.43	6.45	0.05	35.11	0.00	4.94	0.34	0.09
MC9b	51.26	8.82	0.07	21.17	0.01	3.46	1.34	0.16
MC9b	47.80	6.94	0.02	25.44	0.03	3.54	0.78	0.03
MC9b	46.32	5.23	0.03	27.96	0.00	3.59	0.66	0.01
MC9b	45.21	6.79	0.01	31.17	0.00	3.48	0.50	0.05
MC9b	45.76	5.82	0.04	28.27	0.00	3.65	0.37	0.00
MC11a	37.90	7.33	0.00	32.74	0.00	4.31	0.36	0.05
MC11a	37.57	6.60	0.09	34.22	0.01	4.27	1.08	0.04
MC11b	44.14	7.18	0.01	28.06	0.03	4.00	0.24	0.00
MC11b	44.35	6.59	0.03	27.87	0.06	3.86	0.21	0.00
MC11b	46.68	7.23	0.01	25.93	0.03	3.96	0.28	0.03
MC11b	46.02	6.54	0.04	26.53	0.02	3.91	0.16	0.00
MC11b	44.60	6.53	0.02	27.79	0.07	3.92	0.23	0.04
MC14	37.83	9.94	0.06	31.36	0.00	4.86	0.56	0.09
MC2d	51.15	8.96	0.09	21.57	0.00	4.64	1.05	0.04
MC2d	49.61	8.12	0.14	23.98	0.00	3.75	0.63	0.05
MC2d	50.80	8.39	0.06	22.25	0.00	4.12	0.93	0.02
MC2d	53.04	10.87	0.28	17.58	0.00	4.21	2.02	0.07
MC2d	50.12	8.24	0.09	22.25	0.00	3.80	0.61	0.02
MC2d	51.15	8.96	0.09	21.57	0.00	4.64	1.05	0.04
MC2d	49.61	8.12	0.14	23.98	0.00	3.75	0.63	0.05
MC2d	50.80	8.39	0.06	22.25	0.00	4.12	0.93	0.02
MC2d	53.04	10.87	0.28	17.58	0.00	4.21	2.02	0.07

MC2d	50.12	8.24	0.09	22.25	0.00	3.80	0.61	0.02
MC10a	53.75	7.48	0.09	19.03	0.02	4.27	0.83	0.03
MC10a	51.14	5.12	0.00	23.73	0.00	4.58	0.64	0.03
MC10a	52.04	8.46	0.05	21.04	0.00	4.17	1.23	0.03
MC10a	50.63	5.39	0.03	24.87	0.05	4.09	0.79	0.00
MC10a	52.16	7.57	0.00	19.76	0.00	4.20	3.01	0.02
MC25a	48.47	6.91	0.04	24.83	0.00	4.31	1.37	0.00
MC25a	51.32	12.00	0.80	17.55	0.00	4.91	2.69	0.06
MC25a	47.49	21.24	0.09	14.29	0.02	3.44	2.42	0.00
MC25a	52.19	10.28	0.15	18.72	0.01	4.51	2.12	0.07
MC25a	48.86	9.11	0.01	22.56	0.08	3.89	0.88	0.00
MC25b	53.98	9.20	0.11	18.49	0.00	4.08	1.76	0.02
MC25b	50.19	11.85	0.00	18.51	0.00	3.03	1.58	1.30
MC31a	50.61	5.51	0.08	23.11	0.03	4.01	1.23	0.04
MC31a	50.39	5.89	0.04	23.45	0.04	4.14	0.75	0.00
MC31a	47.43	4.82	0.00	26.70	0.02	4.29	0.85	0.00
MC31a	55.55	6.00	0.00	20.34	0.00	3.81	1.23	0.00
MC31b	50.43	5.51	0.00	23.58	0.00	4.05	0.74	0.05
MC31b	43.25	9.72	0.11	26.49	0.06	5.82	1.62	0.00
MC31b	48.73	4.38	0.13	25.94	0.07	4.47	0.75	0.00
MC31b	42.69	4.35	0.04	23.05	0.04	3.68	11.66	0.17
MC31b	49.44	6.08	0.03	24.91	0.02	4.28	1.05	0.00
MC31b	48.07	7.39	0.13	24.61	0.03	4.18	1.08	0.01
MC31b	50.14	12.23	0.12	19.37	0.06	3.21	1.17	0.00
MC31c	48.80	6.39	0.03	24.71	0.00	3.89	1.11	0.04
MC31c	51.45	7.42	0.04	21.39	0.00	3.94	1.24	0.00
MC31c	49.71	5.40	0.05	25.17	0.00	4.16	0.92	0.00
MC31c	50.19	5.35	0.00	24.85	0.04	3.98	0.80	0.00
MC31c	51.81	6.92	0.11	22.58	0.00	3.92	1.82	0.15
MC31d	53.82	8.08	0.04	20.19	0.00	3.60	0.75	0.07
MC31d	59.30	8.80	0.05	15.30	0.02	2.82	1.09	0.80
MC31d	46.21	4.83	0.03	24.43	0.03	3.75	6.44	0.20
MC31d	51.41	6.85	0.08	22.69	0.00	4.20	1.30	0.05
MC31d	50.75	7.71	0.00	20.84	0.00	4.14	2.37	0.01

MC33	50.76	14.40	1.32	16.80	0.01	3.29	0.78	0.06
MC33	51.20	9.93	0.03	19.82	0.03	3.50	2.65	0.00
MC33	47.41	9.22	0.64	21.70	0.08	6.37	1.22	0.00
MC33	49.90	10.83	0.11	20.35	0.00	3.69	2.36	0.00
MC33	48.75	7.12	0.00	24.32	0.03	4.23	1.13	0.03
MC38a	49.37	9.36	0.00	22.21	0.00	3.97	1.21	0.42
MC38a	51.85	10.81	0.28	18.49	0.05	4.33	1.57	0.04
MC38a	34.77	4.16	0.10	16.61	0.01	2.91	28.10	0.84
MC38a	50.87	13.45	0.03	16.51	0.01	3.59	0.79	0.05
MC38a	52.81	10.46	0.05	17.93	0.00	4.27	1.44	0.00
MC38b	47.66	7.30	0.02	25.75	0.04	4.14	1.38	0.00
MC38b	50.32	8.92	0.04	21.47	0.00	3.92	1.58	0.07
MC38b	48.42	11.80	0.06	21.70	0.04	4.58	0.82	0.03
MC38b	48.12	5.30	0.06	27.12	0.07	4.76	1.29	0.00
MC38b	57.48	11.69	0.14	14.18	0.02	3.44	0.83	0.16
MC1d	47.29	3.45	0.01	24.59	0.00	4.03	0.34	5.46
MC1d	47.76	3.84	0.00	23.10	0.00	4.61	0.27	5.26
MC1d	50.33	5.45	0.04	23.90	0.06	4.29	0.39	0.89
MC1d	46.65	4.88	0.00	21.05	0.00	4.57	0.67	5.42
MC5a	51.37	10.45	0.19	18.60	0.01	4.50	0.63	0.02
MC5a	50.33	9.95	0.10	19.21	0.00	5.12	0.46	0.04
MC5a	50.29	7.53	0.02	20.44	0.00	4.93	1.17	0.08
MC5a	48.60	8.95	0.06	21.17	0.05	4.87	0.74	0.00
MC5a	49.67	8.99	0.06	20.48	0.01	4.66	1.13	0.06
MC13	50.43	17.38	0.07	13.09	0.00	3.32	0.24	0.10
MC13	42.24	6.71	0.06	16.55	0.00	3.72	15.52	0.14
MC13	46.61	8.25	0.12	19.36	0.04	3.64	7.08	0.17
MC13	54.63	7.42	0.35	18.35	0.00	3.56	1.16	0.08
MC15	47.24	5.92	0.02	25.48	0.03	4.30	0.28	0.00
MC15	46.84	7.37	0.07	24.49	0.02	4.57	0.63	0.03
MC15	47.27	5.25	0.02	25.81	0.02	4.99	0.35	0.00
MC15	49.00	5.35	0.02	23.28	0.00	5.12	0.41	0.00
MC15	49.05	6.08	0.02	22.20	0.00	4.97	0.34	0.04
MC16	47.41	4.60	0.00	27.59	0.01	4.32	0.00	0.05

MC16	45.83	7.60	0.05	24.98	0.00	4.64	2.94	0.02
MC16	43.97	6.47	0.05	28.99	0.06	4.45	0.59	0.06
MC18	47.59	4.00	0.11	26.86	0.00	4.44	0.43	0.00
MC18	49.16	4.59	0.03	24.38	0.00	5.03	0.50	0.04
MC18	49.05	7.78	0.05	21.49	0.04	4.71	0.39	0.01
MC18	47.90	7.36	0.04	22.84	0.01	4.45	1.30	0.03
MC18	48.00	6.13	0.03	23.63	0.00	4.80	1.01	0.02
MC19b	48.58	7.61	0.07	23.75	0.00	3.66	0.42	0.02
MC19b	49.69	3.84	0.02	25.38	0.03	5.03	0.50	0.06
MC19b	49.90	3.31	0.05	25.56	0.00	5.30	0.53	0.00
MC19b	49.72	3.56	0.03	24.86	0.03	6.05	0.43	0.01
MC19b	48.91	2.32	0.00	27.34	0.00	5.18	0.20	0.00
MC20	50.22	5.83	0.05	23.09	0.02	4.20	0.26	0.05
MC20	50.01	5.10	0.00	23.87	0.01	4.15	0.81	0.00
MC20	51.86	6.68	0.02	20.98	0.07	4.42	0.50	0.00
MC20	50.22	5.00	0.07	24.02	0.00	4.06	0.27	0.00
MC20	50.17	7.25	0.03	21.44	0.05	4.18	1.28	0.02
MC21	48.78	3.29	0.04	26.62	0.00	4.68	0.49	0.00
MC21	49.07	2.94	0.04	26.51	0.01	4.79	0.56	0.00
MC21	49.36	3.77	0.02	26.10	0.01	5.07	0.85	0.00
MC21	49.83	4.39	0.03	24.83	0.02	4.64	0.77	0.00
MC21	49.80	3.80	0.02	25.21	0.01	4.76	0.67	0.02
MC23	50.72	4.91	0.00	23.45	0.03	4.31	0.57	0.03
MC23	51.55	6.71	0.04	21.21	0.00	4.19	0.69	0.04
MC23	51.25	4.35	0.00	24.52	0.04	4.00	0.53	0.00
MC23	53.56	2.65	0.04	23.09	0.00	4.31	0.00	0.00
MC23	51.59	5.92	0.03	21.81	0.06	4.13	0.73	0.09
MC23	53.22	7.42	0.00	20.96	0.00	3.96	0.66	0.02
MC24	51.95	5.18	0.04	23.02	0.03	4.17	0.38	0.04
MC24	50.81	4.66	0.00	24.43	0.01	4.17	0.36	0.01
MC24	51.45	4.86	0.01	23.32	0.02	4.19	0.34	0.00
MC24	50.08	3.27	0.03	25.94	0.07	4.07	0.39	0.06
MC24	50.74	4.65	0.06	24.14	0.05	4.06	0.37	0.04
MC24	52.19	5.41	0.05	22.08	0.00	4.39	0.31	0.02

MC24	51.34	5.15	0.03	23.01	0.00	4.06	0.32	0.01
MC24	51.61	4.73	0.04	23.41	0.00	4.23	0.36	0.01
MC24	52.03	7.22	0.07	20.81	0.00	4.02	0.48	0.03
MC26	48.92	3.54	0.01	26.44	0.00	5.21	0.52	0.06
MC26	49.33	4.95	0.04	25.04	0.02	4.75	0.35	0.00
MC26	46.94	4.52	0.04	26.85	0.00	4.97	1.30	0.01
MC26	51.05	4.16	0.00	25.00	0.04	5.16	0.72	0.00
MC27a	48.46	2.63	0.07	27.71	0.07	5.03	0.22	0.00
MC27a	48.70	2.12	0.00	26.76	0.00	5.58	0.55	0.00
MC27a	46.87	3.41	0.09	28.14	0.09	4.63	1.04	0.01
MC27a	50.01	5.55	0.00	23.65	0.00	4.94	0.30	0.00
MC27a	48.15	3.01	0.00	27.69	0.00	4.84	0.37	0.01
MC27a	47.18	3.26	0.06	28.74	0.01	4.30	0.85	0.01
MC27b	49.65	3.01	0.00	25.59	0.05	4.96	0.23	0.03
MC27b	47.88	2.25	0.03	28.67	0.00	5.09	0.34	0.06
MC27b	48.99	3.31	0.02	26.13	0.04	4.87	0.61	0.02
MC27b	44.80	3.26	0.04	24.28	0.03	4.53	7.34	0.07
MC27b	48.65	3.80	0.04	25.97	0.05	4.72	0.18	0.00
MC28	47.68	2.72	0.02	28.05	0.02	5.21	0.44	0.12
MC28	48.33	3.75	0.02	26.91	0.02	4.91	1.11	0.02
MC28	47.84	3.54	0.00	28.11	0.00	4.34	0.32	0.00
MC28	47.71	2.89	0.00	28.20	0.07	5.13	0.30	0.02
MC28	48.93	2.67	0.01	26.99	0.00	4.75	0.29	0.00
MC35	47.01	5.56	0.00	26.37	0.00	3.86	1.24	0.49
MC35	46.22	3.67	0.00	27.67	0.00	3.76	2.29	0.34
MC35	48.55	5.18	0.03	26.49	0.02	3.71	0.51	0.04
MC35	50.01	8.08	0.09	22.96	0.02	4.07	0.41	0.06
MC36a	32.41	4.34	0.04	18.36	0.00	2.59	29.44	0.11
MC36a	38.92	3.68	1.51	20.51	0.00	2.74	18.29	0.28
MC36a	38.12	4.06	0.06	22.53	0.01	3.31	17.11	0.16
MC36a	42.75	4.62	0.08	20.66	0.01	2.97	15.14	0.11
MC36b	46.80	3.87	0.00	26.46	0.02	4.34	1.69	0.00
MC36b	45.40	4.14	0.01	27.69	0.00	4.23	1.36	0.09
MC39a	48.96	13.05	0.10	20.28	0.05	4.32	2.13	0.43

MC39a	39.94	14.32	0.04	26.98	0.00	4.99	2.85	0.10
MC39a	39.55	12.77	0.09	29.63	0.00	5.77	0.91	0.09
MC39a	39.66	14.07	0.30	28.36	0.00	5.96	1.27	0.02
MC39b	49.55	9.27	0.20	21.59	0.02	4.66	1.01	0.04
MC39b	49.73	3.01	0.03	25.75	0.05	5.29	0.41	0.00
MC39b	49.48	8.86	0.06	21.99	0.07	4.48	0.92	0.01
MC39b	48.91	7.62	0.07	23.31	0.09	4.28	0.77	0.33
MC44	47.09	4.77	0.00	27.81	0.00	4.14	0.06	0.06
MC44	49.72	4.96	0.00	24.03	0.00	4.71	0.13	0.00
MC44	49.38	4.86	0.00	24.94	0.00	4.59	0.15	0.00
MC44	48.26	5.99	0.00	25.47	0.00	3.92	0.20	0.06
MC44	49.43	3.75	0.00	25.16	0.06	5.19	0.07	0.03
MC45	51.00	6.54	0.02	21.50	0.00	4.83	0.49	0.01
MC45	50.01	4.74	0.00	23.73	0.01	4.81	0.34	0.02
MC45	36.69	21.72	0.03	23.36	0.02	3.09	1.07	0.10
MC45	49.91	7.16	0.06	22.52	0.00	4.80	0.37	0.01
MC45	49.85	4.21	0.01	25.00	0.00	4.49	0.25	0.01
MC1c	46.83	10.08	0.06	23.29	0.00	3.92	0.54	0.00
MC1c	49.99	7.58	0.11	21.94	0.03	4.46	0.60	0.04
MC1c	50.73	7.59	0.09	21.03	0.06	4.42	0.43	0.03
MC1c	49.50	7.83	0.04	21.41	0.05	4.10	1.42	0.03
MC1c	48.82	8.56	0.00	22.21	0.04	4.70	0.34	0.08
MC5b	50.41	5.08	0.09	22.93	0.01	5.04	0.45	0.00
MC5b	49.79	4.44	0.02	22.74	0.09	5.17	1.90	0.07
MC5b	51.64	4.39	0.04	22.46	0.04	5.20	0.41	0.01
MC5b	49.61	9.03	0.07	20.64	0.00	4.34	0.54	0.19
MC5b	49.63	4.17	0.05	24.72	0.00	5.21	0.46	0.04
MC19a	49.63	2.58	0.07	26.27	0.03	5.85	0.63	0.00
MC19a	46.36	7.69	0.00	26.06	0.00	4.29	0.72	0.00
MC19a	45.78	7.52	0.05	26.59	0.00	5.08	0.82	0.00
MC19a	49.09	6.89	0.05	23.11	0.00	4.85	1.16	0.00
MC19a	44.66	10.15	0.00	25.32	0.02	4.66	0.90	0.03
MC22	45.53	7.60	0.03	25.94	0.04	5.37	0.38	0.05
MC22	43.56	10.56	0.04	22.91	0.00	8.45	1.13	0.05

MC22	44.48	9.20	0.01	26.60	0.02	5.32	0.45	0.06
MC22	46.12	10.58	0.08	22.91	0.00	5.91	0.66	0.05
MC22	49.57	8.49	0.00	21.96	0.00	4.93	0.47	0.02
MC22	45.62	10.64	0.24	23.94	0.00	4.95	1.00	0.01
MC27c	49.31	4.80	0.06	25.64	0.01	4.87	0.18	0.03
MC27c	49.53	3.40	0.06	26.63	0.00	4.94	0.18	0.02
MC27c	46.80	3.41	0.04	27.52	0.00	5.42	0.19	0.00
MC27c	49.52	3.40	0.00	25.46	0.00	5.30	0.53	0.00
MC27c	49.26	2.90	0.01	26.85	0.00	5.15	0.28	0.01
MC29	40.66	8.02	0.11	28.27	0.00	5.40	4.88	0.00
MC29	42.30	7.39	0.00	28.02	0.01	5.53	3.30	0.04
MC29	42.49	6.62	0.01	26.97	0.01	4.87	4.84	0.05
MC29	47.46	7.28	0.07	24.49	0.04	5.65	0.38	0.11
MC29	44.01	7.29	0.00	28.66	0.00	4.53	0.75	0.08
MC30	46.64	6.94	0.01	26.77	0.00	4.87	0.78	0.00
MC30	46.11	6.84	0.03	26.51	0.02	4.88	0.92	0.00
MC30	44.57	7.73	0.03	27.44	0.00	4.70	0.61	0.07
MC30	43.54	6.16	0.00	29.59	0.07	5.61	0.78	0.00
MC30	50.25	4.01	0.00	25.15	0.01	3.90	0.41	0.03
MC32	38.57	11.90	0.04	31.57	0.01	5.89	1.15	0.05
MC32	36.01	12.22	0.05	29.06	0.00	8.17	3.88	0.11
MC32	45.01	5.67	0.01	28.94	0.00	4.70	0.49	0.02
MC32	50.20	2.65	0.01	26.26	0.00	4.66	0.12	0.00
MC37	44.29	15.90	1.33	21.01	0.07	3.10	0.61	0.22
MC37	38.61	17.79	0.83	24.79	0.04	4.36	1.20	0.45
MC37	46.55	11.59	0.12	23.43	0.04	3.00	0.67	0.08
MC37	45.25	12.27	1.29	22.98	0.02	3.02	0.72	0.14
MC37	46.25	15.41	0.08	19.62	0.03	3.08	1.37	0.05
MC40	47.18	4.69	0.00	27.00	0.00	4.72	0.46	0.06
MC40	40.03	8.61	0.07	30.77	0.00	6.69	1.63	0.01
MC40	41.41	8.91	0.05	30.35	0.03	5.76	0.90	0.09
MC40	44.21	6.70	0.04	28.29	0.01	4.47	1.08	0.06
MC41	42.73	9.05	0.00	26.97	0.02	5.36	0.46	0.00
MC41	36.88	14.22	0.00	27.47	0.02	6.80	1.45	0.98

MC41	36.42	6.91	0.00	28.96	0.00	4.19	0.95	7.52
MC41	42.58	8.37	0.04	28.48	0.03	5.06	0.36	0.03
MC41	42.93	8.14	0.00	25.17	0.00	4.97	0.52	5.18
MC42	49.27	8.46	0.08	22.18	0.01	4.37	0.92	0.11
MC42	48.99	7.24	0.01	23.18	0.04	4.52	0.92	0.03
MC42	47.80	7.52	0.04	24.01	0.06	4.30	1.00	0.05
MC42	48.34	9.00	0.34	23.02	0.01	3.71	1.00	0.03
MC42	49.34	6.79	0.04	23.55	0.06	4.82	1.10	0.06
MC43	37.86	17.66	3.57	20.26	2.03	5.35	1.92	0.00
MC43	48.58	16.90	0.06	15.71	0.05	4.14	0.92	0.18
MC43	30.97	17.09	0.25	28.12	0.11	5.71	8.03	0.03
MC43	49.36	7.51	0.05	23.30	0.00	4.17	0.67	0.00
MC43	48.92	7.30	0.05	23.77	0.05	4.25	0.57	0.00
MC17	48.17	3.91	0.01	24.99	0.00	6.17	0.70	0.00
MC17	46.62	4.41	0.03	27.00	0.00	5.37	0.69	0.02
MC17	49.33	3.47	0.01	24.83	0.00	5.70	1.12	0.02
MC17	46.29	4.38	0.07	26.83	0.01	5.79	0.38	0.04
MC17	48.51	4.10	0.02	25.41	0.02	5.53	0.19	0.00
MC27d	52.72	11.44	1.84	16.33	0.02	3.74	0.28	1.13
MC27d	50.46	5.63	0.03	23.89	0.02	5.19	0.35	0.00
MC27d	51.29	6.75	0.12	21.93	0.04	5.20	0.84	0.00
MC27d	50.41	5.38	0.06	25.34	0.02	4.54	1.55	0.07
MC27d	50.32	6.41	0.05	22.41	0.04	5.86	0.37	0.05
MC27e	49.34	6.38	0.11	23.46	0.00	5.71	0.28	0.08
MC27e	46.17	6.83	0.08	25.61	0.00	5.15	2.29	0.04
MC27e	49.05	6.47	0.08	23.39	0.02	5.84	1.20	0.05
MC27e	48.84	7.10	0.09	23.41	0.04	5.66	0.27	0.03
MC27e	48.64	6.79	0.11	23.37	0.01	5.58	2.15	0.03

Sample	K2O wt%	NiO wt%	Cr2O3 wt%	Cl wt%	Total %
MC1a	7.30	0.00	0.00	0.00	91.68
MC1a	7.56	0.02	0.03	0.00	91.68
MC1a	7.54	0.05	0.04	0.00	91.68
MC1a	6.23	0.01	0.05	0.02	91.68
MC2a	7.24	0.00	0.00	0.01	91.68
MC2a	6.53	0.03	0.01	0.01	91.68
MC2a	6.72	0.03	0.08	0.02	91.68
MC2a	7.12	0.03	0.05	0.04	91.68
MC2a	6.89	0.00	0.00	0.00	91.68
MC4a	6.81	0.00	0.03	0.02	91.68
MC4a	7.18	0.07	0.03	0.00	91.68
MC4a	7.44	0.03	0.06	0.04	91.68
MC4a	7.22	0.01	0.00	0.00	91.68
MC4a	7.89	0.00	0.00	0.01	91.68
MC8a	6.97	0.01	0.00	0.03	91.68
MC8a	7.38	0.00	0.00	0.00	91.68
MC8a	7.11	0.00	0.01	0.03	91.68
MC8a	6.40	0.00	0.10	0.01	91.68
MC8a	7.26	0.00	0.06	0.04	91.68
MC10b	4.69	0.00	0.00	0.06	91.68
MC10b	7.40	0.00	0.01	0.00	91.68
MC10b	5.11	0.00	0.00	0.00	91.68
MC10b	3.12	0.07	0.00	0.00	91.68
MC10b	6.73	0.03	0.03	0.00	91.68
MC10c	7.56	0.00	0.04	0.01	91.68
MC10c	6.85	0.00	0.01	0.02	91.68
MC10c	6.59	0.03	0.06	0.15	91.68
MC10c	6.95	0.00	0.00	0.04	91.68
MC10c	7.06	0.04	0.00	0.02	91.68
MC12	7.04	0.02	0.03	0.02	91.68
MC12	6.38	0.00	0.06	0.01	91.68
MC12	6.80	0.03	0.00	0.01	91.68

MC12	6.58	0.00	0.01	0.01	91.68
MC2b	4.94	0.01	0.00	0.00	91.68
MC2b	6.97	0.00	0.02	0.00	91.68
MC2b	6.20	0.02	0.00	0.00	91.68
MC2b	4.71	0.00	0.03	0.01	91.68
MC2b	4.71	0.00	0.08	0.00	91.68
MC8b	6.68	0.00	0.00	0.00	91.68
MC8b	6.74	0.00	0.00	0.01	91.68
MC8b	5.92	0.02	0.00	0.00	91.68
MC8b	7.36	0.07	0.00	0.03	91.68
MC8b	7.28	0.02	0.00	0.01	91.68
MC9a	7.34	0.00	0.00	0.00	91.68
MC9a	6.23	0.00	0.01	0.00	91.68
MC9a	6.15	0.05	0.00	0.00	91.68
MC9a	7.04	0.02	0.05	0.00	91.68
MC9a	6.84	0.01	0.05	0.00	91.68
MC1b	6.15	0.00	0.02	0.00	91.68
MC1b	6.57	0.02	0.00	0.02	91.68
MC1b	3.92	0.00	0.03	0.01	91.68
MC1b	5.16	0.00	0.04	0.01	91.68
MC1b	5.83	0.00	0.03	0.00	91.68
MC2c	6.01	0.02	0.01	0.02	91.68
MC2c	4.51	0.00	0.01	0.02	91.68
MC2c	6.11	0.00	0.07	0.00	91.68
MC2c	6.13	0.00	0.00	0.01	91.68
MC2c	6.38	0.06	0.03	0.02	91.68
MC3	7.30	0.04	0.00	0.01	91.68
MC3	6.67	0.02	0.00	0.01	91.68
MC3	6.61	0.07	0.00	0.00	91.68
MC3	5.99	0.00	0.02	0.01	91.68
MC3	5.02	0.04	0.00	0.02	91.68
MC4b	6.24	0.03	0.07	0.00	91.68
MC4b	7.71	0.06	0.03	0.00	91.68
MC4b	6.59	0.00	0.06	0.02	91.68

MC4b	7.71	0.07	0.08	0.00	91.68
MC4b	7.63	0.00	0.04	0.00	91.68
MC6	6.81	0.03	0.07	0.00	91.68
MC6	6.90	0.00	0.03	0.00	91.68
MC6	7.48	0.01	0.03	0.02	91.68
MC6	7.29	0.06	0.03	0.00	91.68
MC7	5.26	0.00	0.01	0.00	91.68
MC7	5.65	0.00	0.00	0.00	91.68
MC7	6.36	0.02	0.02	0.00	91.68
MC7	7.07	0.00	0.01	0.03	91.68
MC8c	6.09	0.00	0.09	0.03	91.68
MC8c	8.27	0.00	0.00	0.01	91.68
MC9b	5.39	0.02	0.00	0.01	91.68
MC9b	6.97	0.07	0.04	0.03	91.68
MC9b	7.85	0.00	0.00	0.02	91.68
MC9b	7.59	0.00	0.00	0.00	91.68
MC9b	7.76	0.00	0.00	0.00	91.68
MC11a	8.96	0.00	0.00	0.04	91.68
MC11a	7.79	0.00	0.03	0.00	91.68
MC11b	7.90	0.08	0.04	0.00	91.68
MC11b	8.56	0.01	0.12	0.00	91.68
MC11b	7.50	0.00	0.02	0.00	91.68
MC11b	8.37	0.00	0.10	0.01	91.68
MC11b	8.39	0.00	0.09	0.00	91.68
MC14	6.93	0.00	0.03	0.03	91.68
MC2d	4.11	0.00	0.08	0.00	91.68
MC2d	5.23	0.00	0.14	0.03	91.68
MC2d	5.03	0.03	0.05	0.00	91.68
MC2d	3.56	0.06	0.00	0.00	91.68
MC2d	6.53	0.00	0.01	0.00	91.68
MC2d	4.11	0.00	0.08	0.00	91.68
MC2d	5.23	0.00	0.14	0.03	91.68
MC2d	5.03	0.03	0.05	0.00	91.68
MC2d	3.56	0.06	0.00	0.00	91.68

MC2d	6.53	0.00	0.01	0.00	91.68
MC10a	6.13	0.04	0.02	0.00	91.68
MC10a	6.42	0.00	0.02	0.00	91.68
MC10a	4.59	0.00	0.07	0.00	91.68
MC10a	5.86	0.00	0.01	0.00	91.68
MC10a	4.95	0.00	0.03	0.00	91.68
MC25a	5.70	0.00	0.04	0.00	91.68
MC25a	2.26	0.01	0.10	0.00	91.68
MC25a	2.55	0.05	0.06	0.05	91.68
MC25a	3.51	0.05	0.07	0.03	91.68
MC25a	6.22	0.03	0.03	0.01	91.68
MC25b	3.97	0.07	0.02	0.00	91.68
MC25b	5.21	0.00	0.02	0.00	91.68
MC31a	6.96	0.00	0.09	0.03	91.68
MC31a	6.79	0.04	0.12	0.03	91.68
MC31a	7.50	0.00	0.05	0.01	91.68
MC31a	5.04	0.01	0.01	0.01	91.68
MC31b	7.16	0.04	0.06	0.05	91.68
MC31b	4.56	0.00	0.06	0.00	91.68
MC31b	7.21	0.02	0.00	0.00	91.68
MC31b	5.99	0.00	0.00	0.01	91.68
MC31b	5.78	0.07	0.02	0.01	91.68
MC31b	5.89	0.12	0.13	0.02	91.68
MC31b	5.28	0.12	0.00	0.00	91.68
MC31c	6.68	0.02	0.00	0.00	91.68
MC31c	6.16	0.03	0.00	0.01	91.68
MC31c	6.19	0.08	0.00	0.00	91.68
MC31c	6.43	0.00	0.03	0.00	91.68
MC31c	4.37	0.00	0.00	0.00	91.68
MC31d	5.12	0.00	0.00	0.01	91.68
MC31d	3.48	0.00	0.03	0.01	91.68
MC31d	5.68	0.04	0.01	0.04	91.68
MC31d	4.99	0.03	0.08	0.00	91.68
MC31d	5.82	0.00	0.04	0.02	91.68

MC33	4.20	0.03	0.02	0.02	91.68
MC33	4.46	0.03	0.02	0.02	91.68
MC33	4.98	0.03	0.00	0.02	91.68
MC33	4.27	0.03	0.07	0.07	91.68
MC33	6.00	0.01	0.05	0.01	91.68
MC38a	5.15	0.00	0.00	0.00	91.68
MC38a	4.23	0.00	0.00	0.03	91.68
MC38a	4.12	0.01	0.00	0.01	91.68
MC38a	6.36	0.01	0.00	0.02	91.68
MC38a	4.71	0.00	0.00	0.02	91.68
MC38b	5.28	0.00	0.07	0.05	91.68
MC38b	5.37	0.00	0.00	0.00	91.68
MC38b	4.21	0.01	0.01	0.00	91.68
MC38b	4.92	0.00	0.04	0.03	91.68
MC38b	3.63	0.07	0.04	0.01	91.68
MC1d	6.39	0.00	0.06	0.05	91.68
MC1d	6.74	0.00	0.08	0.02	91.68
MC1d	6.25	0.02	0.06	0.01	91.68
MC1d	8.19	0.04	0.13	0.06	91.68
MC5a	5.87	0.00	0.05	0.00	91.68
MC5a	6.37	0.03	0.05	0.02	91.68
MC5a	7.12	0.00	0.10	0.01	91.68
MC5a	7.21	0.00	0.02	0.01	91.68
MC5a	6.52	0.03	0.07	0.03	91.68
MC13	7.02	0.03	0.00	0.00	91.68
MC13	6.62	0.00	0.03	0.00	91.68
MC13	6.32	0.10	0.00	0.01	91.68
MC13	6.07	0.05	0.01	0.00	91.68
MC15	8.30	0.02	0.09	0.00	91.68
MC15	7.52	0.02	0.12	0.02	91.68
MC15	7.90	0.04	0.00	0.02	91.68
MC15	8.44	0.02	0.04	0.00	91.68
MC15	8.85	0.02	0.10	0.00	91.68
MC16	7.68	0.00	0.01	0.01	91.68

MC16	5.52	0.01	0.08	0.01	91.68
MC16	6.89	0.07	0.06	0.01	91.68
MC18	8.12	0.12	0.00	0.01	91.68
MC18	7.84	0.06	0.05	0.00	91.68
MC18	8.07	0.00	0.10	0.00	91.68
MC18	7.66	0.00	0.07	0.00	91.68
MC18	7.95	0.03	0.09	0.01	91.68
MC19b	7.49	0.00	0.10	0.00	91.68
MC19b	7.12	0.01	0.00	0.01	91.68
MC19b	6.97	0.00	0.07	0.00	91.68
MC19b	6.90	0.09	0.00	0.02	91.68
MC19b	7.70	0.00	0.03	0.00	91.68
MC20	7.79	0.00	0.13	0.06	91.68
MC20	7.66	0.08	0.00	0.00	91.68
MC20	7.08	0.00	0.07	0.02	91.68
MC20	7.93	0.07	0.06	0.00	91.68
MC20	7.25	0.00	0.00	0.01	91.68
MC21	7.74	0.00	0.05	0.00	91.68
MC21	7.71	0.05	0.00	0.02	91.68
MC21	6.48	0.00	0.01	0.02	91.68
MC21	7.11	0.08	0.00	0.00	91.68
MC21	7.41	0.01	0.00	0.01	91.68
MC23	7.63	0.03	0.02	0.02	91.68
MC23	7.22	0.00	0.02	0.03	91.68
MC23	6.91	0.00	0.07	0.00	91.68
MC23	7.94	0.00	0.06	0.02	91.68
MC23	7.20	0.00	0.10	0.04	91.68
MC23	5.41	0.00	0.01	0.00	91.68
MC24	6.86	0.00	0.00	0.00	91.68
MC24	7.19	0.00	0.02	0.02	91.68
MC24	7.40	0.05	0.04	0.00	91.68
MC24	7.74	0.01	0.03	0.00	91.68
MC24	7.51	0.04	0.04	0.01	91.68
MC24	7.16	0.01	0.06	0.00	91.68

MC24	7.69	0.00	0.07	0.00	91.68
MC24	7.31	0.00	0.00	0.00	91.68
MC24	6.97	0.00	0.05	0.03	91.68
MC26	6.93	0.00	0.06	0.00	91.68
MC26	7.12	0.03	0.06	0.00	91.68
MC26	6.86	0.10	0.07	0.02	91.68
MC26	5.53	0.03	0.00	0.00	91.68
MC27a	7.15	0.00	0.00	0.03	91.68
MC27a	7.99	0.00	0.00	0.00	91.68
MC27a	7.31	0.00	0.01	0.08	91.68
MC27a	7.22	0.00	0.01	0.02	91.68
MC27a	7.50	0.02	0.04	0.04	91.68
MC27a	7.16	0.00	0.00	0.11	91.68
MC27b	8.10	0.00	0.07	0.00	91.68
MC27b	7.34	0.00	0.02	0.00	91.68
MC27b	7.68	0.00	0.00	0.01	91.68
MC27b	7.27	0.01	0.06	0.00	91.68
MC27b	8.18	0.04	0.07	0.00	91.68
MC28	7.41	0.02	0.00	0.00	91.68
MC28	6.63	0.00	0.00	0.00	91.68
MC28	7.49	0.03	0.00	0.02	91.68
MC28	7.35	0.00	0.04	0.01	91.68
MC28	8.04	0.00	0.00	0.00	91.68
MC35	7.13	0.00	0.00	0.01	91.68
MC35	7.73	0.00	0.00	0.00	91.68
MC35	7.12	0.00	0.05	0.00	91.68
MC35	5.81	0.09	0.02	0.04	91.68
MC36a	4.36	0.00	0.01	0.00	91.68
MC36a	5.65	0.08	0.00	0.00	91.68
MC36a	6.30	0.01	0.01	0.00	91.68
MC36a	5.33	0.01	0.00	0.00	91.68
MC36b	8.45	0.03	0.00	0.02	91.68
MC36b	8.75	0.00	0.02	0.00	91.68
MC39a	2.33	0.00	0.01	0.02	91.68

MC39a	2.43	0.00	0.04	0.00	91.68
MC39a	2.84	0.02	0.00	0.00	91.68
MC39a	1.98	0.04	0.01	0.00	91.68
MC39b	5.30	0.01	0.02	0.00	91.68
MC39b	7.37	0.06	0.00	0.02	91.68
MC39b	5.66	0.09	0.05	0.00	91.68
MC39b	6.25	0.04	0.00	0.03	91.68
MC44	7.75	0.00	0.00	0.02	91.68
MC44	8.02	0.06	0.04	0.01	91.68
MC44	7.75	0.03	0.00	0.00	91.68
MC44	7.76	0.00	0.03	0.00	91.68
MC44	7.99	0.00	0.00	0.00	91.68
MC45	7.26	0.02	0.00	0.01	91.68
MC45	7.97	0.00	0.04	0.00	91.68
MC45	5.51	0.00	0.08	0.00	91.68
MC45	6.80	0.04	0.00	0.00	91.68
MC45	7.80	0.00	0.05	0.00	91.68
MC1c	6.90	0.03	0.03	0.01	91.68
MC1c	6.89	0.00	0.04	0.00	91.68
MC1c	7.31	0.00	0.01	0.00	91.68
MC1c	7.27	0.03	0.02	0.00	91.68
MC1c	6.87	0.00	0.05	0.04	91.68
MC5b	7.59	0.05	0.03	0.01	91.68
MC5b	7.34	0.06	0.07	0.01	91.68
MC5b	7.51	0.00	0.00	0.02	91.68
MC5b	7.10	0.06	0.12	0.02	91.68
MC5b	7.35	0.03	0.03	0.00	91.68
MC19a	6.62	0.00	0.00	0.00	91.68
MC19a	6.47	0.03	0.04	0.01	91.68
MC19a	5.72	0.10	0.01	0.03	91.68
MC19a	6.48	0.00	0.04	0.00	91.68
MC19a	5.89	0.00	0.04	0.01	91.68
MC22	6.73	0.00	0.00	0.02	91.68
MC22	4.86	0.02	0.07	0.00	91.68

MC22	5.44	0.01	0.06	0.03	91.68
MC22	5.24	0.03	0.10	0.00	91.68
MC22	6.17	0.03	0.03	0.00	91.68
MC22	5.19	0.04	0.04	0.01	91.68
MC27c	6.68	0.00	0.07	0.04	91.68
MC27c	6.84	0.00	0.01	0.08	91.68
MC27c	8.14	0.04	0.10	0.04	91.68
MC27c	7.35	0.06	0.02	0.04	91.68
MC27c	7.17	0.00	0.00	0.05	91.68
MC29	4.14	0.01	0.05	0.14	91.68
MC29	5.04	0.00	0.03	0.03	91.68
MC29	5.67	0.00	0.09	0.06	91.68
MC29	6.14	0.00	0.08	0.00	91.68
MC29	6.15	0.06	0.08	0.08	91.68
MC30	5.65	0.00	0.03	0.02	91.68
MC30	6.28	0.06	0.04	0.01	91.68
MC30	6.43	0.08	0.01	0.02	91.68
MC30	5.91	0.00	0.00	0.00	91.68
MC30	7.78	0.00	0.12	0.02	91.68
MC32	2.37	0.00	0.13	0.00	91.68
MC32	1.93	0.01	0.19	0.04	91.68
MC32	6.76	0.06	0.03	0.00	91.68
MC32	7.75	0.00	0.00	0.02	91.68
MC37	5.11	0.00	0.06	0.00	91.68
MC37	3.52	0.06	0.03	0.01	91.68
MC37	6.12	0.04	0.02	0.02	91.68
MC37	5.96	0.00	0.03	0.01	91.68
MC37	5.71	0.05	0.03	0.01	91.68
MC40	7.43	0.03	0.09	0.00	91.68
MC40	3.66	0.04	0.17	0.00	91.68
MC40	4.09	0.01	0.05	0.05	91.68
MC40	5.95	0.02	0.10	0.73	91.68
MC41	6.95	0.07	0.08	0.00	91.68
MC41	3.74	0.00	0.10	0.01	91.68

MC41	6.67	0.00	0.03	0.02	91.68
MC41	6.56	0.00	0.16	0.03	91.68
MC41	4.73	0.00	0.05	0.01	91.68
MC42	6.26	0.02	0.01	0.00	91.68
MC42	6.68	0.00	0.09	0.00	91.68
MC42	6.56	0.01	0.08	0.24	91.68
MC42	6.22	0.00	0.00	0.00	91.68
MC42	5.82	0.02	0.07	0.02	91.68
MC43	3.05	0.00	0.00	0.00	91.68
MC43	5.03	0.05	0.06	0.01	91.68
MC43	1.27	0.04	0.05	0.01	91.68
MC43	6.59	0.02	0.00	0.01	91.68
MC43	6.70	0.00	0.07	0.00	91.68
MC17	7.72	0.00	0.00	0.00	91.68
MC17	7.40	0.05	0.08	0.01	91.68
MC17	7.20	0.00	0.00	0.00	91.68
MC17	7.86	0.00	0.06	0.00	91.68
MC17	7.82	0.01	0.06	0.01	91.68
MC27d	4.15	0.00	0.01	0.02	91.68
MC27d	6.06	0.01	0.00	0.03	91.68
MC27d	5.52	0.00	0.00	0.00	91.68
MC27d	3.80	0.02	0.03	0.45	91.68
MC27d	6.10	0.00	0.02	0.05	91.68
MC27e	6.18	0.00	0.11	0.01	91.68
MC27e	5.46	0.01	0.03	0.01	91.68
MC27e	5.47	0.00	0.11	0.01	91.68
MC27e	6.15	0.01	0.05	0.00	91.68
MC27e	4.90	0.00	0.10	0.00	91.68

Section D9c

ELECTRON MICROPROBE DATA: SAMPLE AVERAGE

All the wt% analyses made for a single sample are averaged to give a sample average wt% composition analysis. The clayform program was then used to calculate a mineral glauconite formula for each sample.

MC1a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	43.8400	63.1313
TiO ₂	0.0400	0.0433
Al ₂ O ₃	7.5200	6.3814
Cr ₂ O ₃	0.0300	0.0171
Fe ₂ O ₃	29.2600	15.8535
MnO	0.0200	0.0244
NiO	0.0200	0.0232
MgO	3.5200	7.5566
CaO	0.2000	0.3086
Na ₂ O	0.0600	0.0838
K ₂ O	7.1600	6.5768
	-----	-----
Total	91.6700	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.38825	
	Al	0.61175	
	Total		4.00000
Octahedral	Al	0.07323	
	Fe ³⁺	1.42944	
	Fe ²⁺	0.27227	
	Mg	0.40556	
	Total		2.18051
Interlayer	Ca	0.01656	
	Na	0.00899	
	K	0.70595	
	Total		0.73151

Tetrahedral layer charge = -0.61175

Octahedral layer charge = -0.13632

Interlayer cation charge = 0.74807

MC2a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	45.3100	64.2344
TiO ₂	0.0600	0.0640
Al ₂ O ₃	8.6400	7.2179
Cr ₂ O ₃	0.0300	0.0168
Fe ₂ O ₃	26.8300	14.3111
MnO	0.0200	0.0240
NiO	0.0200	0.0228
MgO	3.3800	7.1433
CaO	0.4600	0.6987
Na ₂ O	0.0200	0.0275
K ₂ O	6.9000	6.2395
Cl	0.0200	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0045
TOTAL	91.6855	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.44883	
	Al	0.55117	
	Total		4.00000
Octahedral	Al	0.22391	
	Fe ³⁺	1.29088	
	Fe ²⁺	0.24588	
	Mg	0.38353	
	Total		2.14420
Interlayer	Ca	0.03751	
	Na	0.00295	
	K	0.67002	
	Total		0.71048

Tetrahedral layer charge = -0.55117

Octahedral layer charge = -0.19682

Interlayer cation charge = 0.74800

MC4a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	48.3800	67.0410
TiO ₂	0.0500	0.0521
Al ₂ O ₃	6.7400	5.5038
Cr ₂ O ₃	0.0200	0.0110
Fe ₂ O ₃	25.2300	13.1543
MnO	0.0100	0.0117
NiO	0.0200	0.0223
MgO	3.3900	7.0030
CaO	0.4800	0.7126
Na ₂ O	0.0200	0.0269
K ₂ O	7.3100	6.4613
Cl	0.0100	
	-----	-----
Total	91.6600	100.0000
	O=F+Cl	0.0023
TOTAL	91.6577	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.64794	
	Al	0.35206	
	Total		4.00000
Octahedral	Al	0.24690	
	Fe ³⁺	1.20250	
	Fe ²⁺	0.22905	
	Mg	0.38106	
Total			2.05951
Interlayer	Ca	0.03878	
	Na	0.00292	
	K	0.70317	
	Total		

Tetrahedral layer charge = -0.35206

Octahedral layer charge = -0.43158

Interlayer cation charge = 0.78364

MC8a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	48.2700	65.1175
Al ₂ O ₃	4.3100	3.4263
Cr ₂ O ₃	0.0300	0.0160
Fe ₂ O ₃	25.6200	13.0040
MnO	0.0100	0.0114
MgO	5.5700	11.2017
CaO	0.8000	1.1563
Na ₂ O	0.0200	0.0262
K ₂ O	7.0200	6.0407
Cl	0.0200	
	-----	-----
Total	91.6700	100.0000
O=F+Cl	0.0045	
TOTAL	91.6655	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.65698	
	Al	0.34302	
	Total		4.00000
Octahedral	Al	0.04182	
	Fe ³⁺	1.22690	
	Fe ²⁺	0.23370	
	Mg	0.62908	
	Total		2.13150
Interlayer	Ca	0.06494	
	Na	0.00294	
	K	0.67849	
	Total		0.74636

Tetrahedral layer charge = -0.34302

Octahedral layer charge = -0.46827

Interlayer cation charge = 0.81130

MC10b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	50.1400	68.2590
TiO ₂	0.0900	0.0921
Al ₂ O ₃	11.7100	9.3942
Cr ₂ O ₃	0.0100	0.0054
Fe ₂ O ₃	20.8100	10.6592
MnO	0.0300	0.0346
NiO	0.0200	0.0219
MgO	3.2200	6.5349
CaO	0.1700	0.2480
Na ₂ O	0.0400	0.0528
K ₂ O	5.4100	4.6979
Cl	0.0100	
	-----	-----
Total	91.6600	100.0000
	O=F+Cl	0.0023
TOTAL	91.6577	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.63596	
	Al	0.36404	
	Total		4.00000
Octahedral	Al	0.63677	
	Fe ³⁺	0.95388	
	Fe ²⁺	0.18169	
	Mg	0.34810	
	Total		2.12043
Interlayer	Ca	0.01321	
	Na	0.00562	
	K	0.50048	
	Total		0.51932

Tetrahedral layer charge = -0.36404

Octahedral layer charge = -0.16849

Interlayer cation charge = 0.53253

MC10c

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	50.2800	68.9969
TiO ₂	0.0500	0.0516
Al ₂ O ₃	7.7800	6.2913
Cr ₂ O ₃	0.0200	0.0108
Fe ₂ O ₃	23.3000	12.0301
MnO	0.0100	0.0116
NiO	0.0100	0.0110
MgO	3.1200	6.3826
CaO	0.0500	0.0735
Na ₂ O	0.0100	0.0133
K ₂ O	7.0000	6.1272
Cl	0.0500	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0113
TOTAL	91.6687	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.72719	
	Al	0.27281	
	Total		4.00000
Octahedral	Al	0.40689	
	Fe ³⁺	1.09176	
	Fe ²⁺	0.20795	
	Mg	0.34479	
	Total		2.05140
Interlayer	Ca	0.00397	
	Na	0.00144	
	K	0.66198	
	Total		0.66738

Tetrahedral layer charge = -0.27281

Octahedral layer charge = -0.39855

Interlayer cation charge = 0.67136

MC12

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	47.2400	65.9192
TiO ₂	0.0600	0.0630
Al ₂ O ₃	14.5200	11.9397
Cr ₂ O ₃	0.0200	0.0110
Fe ₂ O ₃	20.5200	10.7735
MnO	0.0100	0.0118
NiO	0.0100	0.0112
MgO	2.4800	5.1590
CaO	0.0900	0.1346
Na ₂ O	0.0100	0.0135
K ₂ O	6.7000	5.9636
Cl	0.0100	
	-----	-----
Total	91.6700	100.0000
	O=F+Cl	0.0023
TOTAL	91.6677	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.46074	
	Al	0.53926	
	Total		4.00000
Octahedral	Al	0.71440	
	Fe ³⁺	0.95022	
	Fe ²⁺	0.18099	
	Mg	0.27084	
Total			2.11646
Interlayer	Ca	0.00706	
	Na	0.00142	
	K	0.62617	
	Total		

Tetrahedral layer charge = -0.53926

Octahedral layer charge = -0.10246

Interlayer cation charge = 0.64172

MC2b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	52.0400	68.7885
TiO ₂	0.0600	0.0596
Al ₂ O ₃	10.2300	7.9686
Cr ₂ O ₃	0.0300	0.0157
Fe ₂ O ₃	18.9800	9.4396
MnO	0.0200	0.0224
NiO	0.0100	0.0106
MgO	4.0200	7.9216
CaO	0.7600	1.0763
Na ₂ O	0.0400	0.0513
K ₂ O	5.5100	4.6458
	-----	-----
Total	91.7000	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.74617	
	Al	0.25383	
	Total		4.00000
Octahedral	Al	0.61409	
	Fe ³⁺	0.86364	
	Fe ²⁺	0.16450	
	Mg	0.43140	
	Total		2.07364
Interlayer	Ca	0.05862	
	Na	0.00558	
	K	0.50601	
	Total		0.57021

Tetrahedral layer charge = -0.25383

Octahedral layer charge = -0.37500

Interlayer cation charge = 0.62883

MC8b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	48.5000	67.0521
TiO ₂	0.0400	0.0416
Al ₂ O ₃	5.7400	4.6764
Fe ₂ O ₃	26.2700	13.6649
MnO	0.0100	0.0117
NiO	0.0200	0.0222
MgO	3.7600	7.7494
CaO	0.5300	0.7851
K ₂ O	6.8000	5.9966
Cl	0.0100	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0023
TOTAL	91.6777	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.66091	
	Al	0.33909	
	Total		4.00000
Octahedral	Al	0.17155	
	Fe ³⁺	1.25341	
	Fe ²⁺	0.23874	
	Mg	0.42310	
Total			2.08680
Interlayer	Ca	0.04286	
	K	0.65481	
	Total		

Tetrahedral layer charge = -0.33909

Octahedral layer charge = -0.40144

Interlayer cation charge = 0.74053

MC9a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	47.1100	66.3635
TiO ₂	0.0200	0.0212
Al ₂ O ₃	7.5200	6.2425
Cr ₂ O ₃	0.0200	0.0111
Fe ₂ O ₃	25.2300	13.3724
MnO	0.0200	0.0239
NiO	0.0200	0.0227
MgO	3.2400	6.8041
CaO	0.7200	1.0867
Na ₂ O	0.0100	0.0137
K ₂ O	6.7200	6.0383
	-----	-----
Total	90.6300	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.58942	
	Al	0.41058	
	Total		4.00000
Octahedral	Al	0.26470	
	Fe ³⁺	1.21511	
	Fe ²⁺	0.23145	
	Mg	0.36801	
	Total		2.07927
Interlayer	Ca	0.05878	
	Na	0.00148	
	K	0.65319	
	Total		0.71344

Tetrahedral layer charge = -0.41058

Octahedral layer charge = -0.36164

Interlayer cation charge = 0.77222

MC1b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	50.7100	67.9304
TiO ₂	0.0800	0.0806
Al ₂ O ₃	8.1300	6.4178
Cr ₂ O ₃	0.0200	0.0106
Fe ₂ O ₃	21.9800	11.0784
MnO	0.0200	0.0227
MgO	4.0500	8.0879
CaO	1.1200	1.6075
Na ₂ O	0.0300	0.0390
K ₂ O	5.5300	4.7252
Cl	0.0100	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0023
TOTAL	91.6777	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.71691	
	Al	0.28309	
	Total		4.00000
Octahedral	Al	0.41923	
	Fe ³⁺	1.01836	
	Fe ²⁺	0.19397	
	Mg	0.44254	
	Total		2.07411
Interlayer	Ca	0.08796	
	Na	0.00426	
	K	0.51710	
	Total		0.60932

Tetrahedral layer charge = -0.28309

Octahedral layer charge = -0.41418

Interlayer cation charge = 0.69727

MC2c

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	49.3600	66.7898
TiO ₂	0.0900	0.0916
Al ₂ O ₃	8.3700	6.6740
Cr ₂ O ₃	0.0200	0.0107
Fe ₂ O ₃	22.8300	11.6230
MnO	0.0100	0.0115
NiO	0.0200	0.0218
MgO	4.0600	8.1897
CaO	1.0100	1.4642
Na ₂ O	0.0700	0.0918
K ₂ O	5.8300	5.0319
Cl	0.0100	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0023
TOTAL	91.6777	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.64811	
	Al	0.35189	
	Total		4.00000
Octahedral	Al	0.37719	
	Fe ³⁺	1.06656	
	Fe ²⁺	0.20315	
	Mg	0.44733	
	Total		2.09423
Interlayer	Ca	0.07998	
	Na	0.01003	
	K	0.54969	
	Total		0.63970

Tetrahedral layer charge = -0.35189

Octahedral layer charge = -0.36779

Interlayer cation charge = 0.71968

MC3

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	45.9800	64.7225
TiO ₂	0.0400	0.0423
Al ₂ O ₃	7.0200	5.8230
Fe ₂ O ₃	28.0900	14.8770
MnO	0.0300	0.0358
NiO	0.0300	0.0340
MgO	3.2700	6.8619
CaO	1.2700	1.9153
Na ₂ O	0.0100	0.0136
K ₂ O	6.3200	5.6746
Cl	0.0100	
	-----	-----
Total	92.0700	100.0000
	O=F+Cl	0.0023
TOTAL	92.0677	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.49628	
	Al	0.50372	
	Total		4.00000
Octahedral	Al	0.12539	
	Fe ³⁺	1.35013	
	Fe ²⁺	0.25717	
	Mg	0.37067	
	Total		2.10336
Interlayer	Ca	0.10347	
	Na	0.00147	
	K	0.61307	
	Total		0.71801

Tetrahedral layer charge = -0.50372

Octahedral layer charge = -0.31776

Interlayer cation charge = 0.82148

MC4b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	40.8700	59.9266
TiO ₂	0.0300	0.0331
Al ₂ O ₃	7.9000	6.8260
Cr ₂ O ₃	0.0500	0.0290
Fe ₂ O ₃	30.8700	17.0306
NiO	0.0300	0.0354
MgO	3.6100	7.8910
CaO	0.7900	1.2411
Na ₂ O	0.0400	0.0569
K ₂ O	7.4100	6.9305
	-----	-----
Total	91.6000	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.21844	
	Al	0.73320	
	Total		3.95164
Octahedral	Fe ³⁺	1.53661	
	Fe ²⁺	0.29269	
	Mg	0.42380	
	Total		2.25309
Interlayer	Ca	0.06665	
	Na	0.00611	
	K	0.74442	
	Total		0.81718

Tetrahedral layer charge = -0.92663

Octahedral layer charge = 0.04280

Interlayer cation charge = 0.88383

MC6

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	47.8300	65.2562
TiO ₂	0.0400	0.0410
Al ₂ O ₃	6.3100	5.0731
Cr ₂ O ₃	0.0400	0.0216
Fe ₂ O ₃	24.7000	12.6793
MnO	0.0100	0.0116
NiO	0.0300	0.0329
MgO	4.3600	8.8678
CaO	1.2000	1.7541
Na ₂ O	0.0500	0.0661
K ₂ O	7.1200	6.1963
	-----	-----
Total	91.6900	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.61393	
	Al	0.38607	
	Total		4.00000
Octahedral	Al	0.17584	
	Fe ³⁺	1.17968	
	Fe ²⁺	0.22470	
	Mg	0.49110	
	Total		2.07132
Interlayer	Ca	0.09714	
	Na	0.00732	
	K	0.68631	
	Total		0.79078

Tetrahedral layer charge = -0.38607

Octahedral layer charge = -0.50185

Interlayer cation charge = 0.88792

MC7

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	32.1600	51.4824
TiO ₂	0.0500	0.0602
Al ₂ O ₃	8.4700	7.9901
Cr ₂ O ₃	0.0100	0.0063
Fe ₂ O ₃	40.3500	24.3032
MnO	0.0400	0.0542
MgO	3.2400	7.7321
CaO	1.2100	2.0753
Na ₂ O	0.0500	0.0776
K ₂ O	6.0900	6.2185
Cl	0.0100	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0023
TOTAL	91.6777	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	2.67050	
	Al	0.82893	
	Total		3.49943
Octahedral	Fe ³⁺	2.11791	
	Fe ²⁺	0.40341	
	Mg	0.40108	
	Total		2.92240
Interlayer	Ca	0.10765	
	Na	0.00805	
	K	0.64514	
	Total		0.76084

Tetrahedral layer charge = -2.83120

Octahedral layer charge = 1.96271

Interlayer cation charge = 0.86849

MC8c

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	38.5700	56.8130
TiO ₂	0.0900	0.0997
Al ₂ O ₃	8.4200	7.3086
Cr ₂ O ₃	0.0500	0.0291
Fe ₂ O ₃	32.0100	17.7403
MnO	0.0500	0.0624
MgO	4.5700	10.0351
CaO	0.6300	0.9943
Na ₂ O	0.1200	0.1714
K ₂ O	7.1800	6.7461
Cl	0.0200	
	-----	-----
Total	91.7100	100.0000
	O=F+Cl	0.0045
TOTAL	91.7055	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.06523	
	Al	0.78864	
	Total		3.85388
Octahedral	Fe ³⁺	1.60800	
	Fe ²⁺	0.30629	
	Mg	0.54143	
	Total		2.45571
Interlayer	Ca	0.05364	
	Na	0.01849	
	K	0.72794	
	Total		0.80007

Tetrahedral layer charge = -1.37314

Octahedral layer charge = 0.51942

Interlayer cation charge = 0.85372

MC9b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	47.2700	65.6457
TiO ₂	0.0300	0.0313
Al ₂ O ₃	6.7200	5.4994
Cr ₂ O ₃	0.0100	0.0055
Fe ₂ O ₃	26.8000	14.0034
MnO	0.0100	0.0118
NiO	0.0200	0.0223
MgO	3.5400	7.3288
CaO	0.7300	1.0862
Na ₂ O	0.0500	0.0673
K ₂ O	7.1100	6.2982
Cl	0.0100	
	-----	-----
Total	92.3000	100.0000
	O=F+Cl	0.0023
TOTAL	92.2978	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.56876	
	Al	0.43124	
	Total		4.00000
Octahedral	Al	0.16670	
	Fe ³⁺	1.27895	
	Fe ²⁺	0.24361	
	Mg	0.39842	
	Total		2.08769
Interlayer	Ca	0.05905	
	Na	0.00732	
	K	0.68479	
	Total		0.75116

Tetrahedral layer charge = -0.43124

Octahedral layer charge = -0.37897

Interlayer cation charge = 0.81021

MC11a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	37.7400	56.2944
TiO ₂	0.0500	0.0561
Al ₂ O ₃	6.9600	6.1178
Cr ₂ O ₃	0.0100	0.0059
Fe ₂ O ₃	33.4800	18.7900
MgO	4.2900	9.5396
CaO	0.7200	1.1507
Na ₂ O	0.0500	0.0723
K ₂ O	8.3800	7.9733
Cl	0.0200	
	-----	-----
Total	91.7000	100.0000
	O=F+Cl	0.0045
TOTAL	91.6955	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.04981	
	Al	0.66288	
	Total		3.71269
Octahedral	Fe ³⁺	1.71018	
	Fe ²⁺	0.32575	
	Mg	0.51682	
	Total		2.55275
Interlayer	Ca	0.06234	
	Na	0.00783	
	K	0.86392	
	Total		0.93409

Tetrahedral layer charge = -1.81212

Octahedral layer charge = 0.81568

Interlayer cation charge = 0.99643

MC11b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	45.1600	63.7753
TiO ₂	0.0200	0.0212
Al ₂ O ₃	6.8100	5.6672
Cr ₂ O ₃	0.0700	0.0391
Fe ₂ O ₃	27.2400	14.4738
MnO	0.0400	0.0478
NiO	0.0200	0.0227
MgO	3.9300	8.2737
CaO	0.2200	0.3329
Na ₂ O	0.0100	0.0137
K ₂ O	8.1400	7.3325
	-----	-----
Total	91.6600	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.47962	
	Al	0.52038	
	Total		4.00000
Octahedral	Al	0.09803	
	Fe ³⁺	1.32670	
	Fe ²⁺	0.25270	
	Mg	0.45142	
	Total		2.12885
Interlayer	Ca	0.01816	
	Na	0.00149	
	K	0.80013	
	Total		0.81979

Tetrahedral layer charge = -0.52038

Octahedral layer charge = -0.31756

Interlayer cation charge = 0.83795

MC14

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	37.8300	55.7172
TiO ₂	0.0600	0.0665
Al ₂ O ₃	9.9400	8.6271
Cr ₂ O ₃	0.0300	0.0175
Fe ₂ O ₃	31.3600	17.3783
MgO	4.8600	10.6708
CaO	0.5600	0.8837
Na ₂ O	0.0900	0.1285
K ₂ O	6.9300	6.5105
Cl	0.0300	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0068
TOTAL	91.6832	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	2.99170	
	Al	0.92645	
	Total		3.91815
Octahedral	Fe ³⁺	1.56763	
	Fe ²⁺	0.29860	
	Mg	0.57296	
	Total		2.43919
Interlayer	Ca	0.04745	
	Na	0.01380	
	K	0.69915	
	Total		0.76040

Tetrahedral layer charge = -1.25386

Octahedral layer charge = 0.44601

Interlayer cation charge = 0.80785

MC2d

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO2	50.9400	68.0799
TiO2	0.1300	0.1307
Al2O3	8.9100	7.0172
Cr2O3	0.0600	0.0317
Fe2O3	21.5300	10.8263
NiO	0.0200	0.0215
MgO	4.1000	8.1687
CaO	1.0500	1.5035
Na2O	0.0400	0.0518
K2O	4.8900	4.1687
Cl	0.0100	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0023
TOTAL	91.6777	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.71006	
	Al	0.28994	
	Total		4.00000
Octahedral	Al	0.47487	
	Fe3+	0.99118	
	Fe2+	0.18880	
	Mg	0.44516	
	Total		2.10001
Interlayer	Ca	0.08193	
	Na	0.00565	
	K	0.45435	
	Total		0.54193

Tetrahedral layer charge = -0.28994

Octahedral layer charge = -0.33393

Interlayer cation charge = 0.62387

MC10a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	51.9400	68.8061
TiO ₂	0.0300	0.0299
Al ₂ O ₃	6.8000	5.3084
Cr ₂ O ₃	0.0300	0.0157
Fe ₂ O ₃	21.6900	10.8109
MnO	0.0100	0.0112
NiO	0.0100	0.0107
MgO	4.2600	8.4129
CaO	1.3000	1.8451
Na ₂ O	0.0200	0.0257
K ₂ O	5.5900	4.7235
	-----	-----
Total	91.6800	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.79863	
	Al	0.20137	
	Total		4.00000
Octahedral	Al	0.38475	
	Fe ³⁺	1.00270	
	Fe ²⁺	0.19099	
	Mg	0.46445	
	Total		2.04290
Interlayer	Ca	0.10187	
	Na	0.00284	
	K	0.52155	
	Total		0.62625

Tetrahedral layer charge = -0.20137

Octahedral layer charge = -0.52675

Interlayer cation charge = 0.72812

MC25a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	49.6700	66.0438
TiO ₂	0.2200	0.2200
Al ₂ O ₃	11.9000	9.3242
Cr ₂ O ₃	0.0600	0.0315
Fe ₂ O ₃	19.5900	9.8005
MnO	0.0200	0.0225
NiO	0.0300	0.0321
MgO	4.2100	8.3450
CaO	1.9000	2.7068
Na ₂ O	0.0300	0.0387
K ₂ O	4.0500	3.4350
Cl	0.0200	
	-----	-----
Total	91.7000	100.0000
	O=F+Cl	0.0045
TOTAL	91.6955	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.58900	
	Al	0.41100	
	Total		4.00000
Octahedral	Al	0.60240	
	Fe ³⁺	0.89475	
	Fe ²⁺	0.17043	
	Mg	0.45349	
	Total		2.12107
Interlayer	Ca	0.14709	
	Na	0.00420	
	K	0.37333	
	Total		0.52463

Tetrahedral layer charge = -0.41100

Octahedral layer charge = -0.26072

Interlayer cation charge = 0.67172

MC25b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	52.0800	68.5429
TiO ₂	0.0500	0.0495
Al ₂ O ₃	10.5200	8.1589
Cr ₂ O ₃	0.0200	0.0104
Fe ₂ O ₃	18.5000	9.1610
NiO	0.0400	0.0423
MgO	3.5600	6.9847
CaO	1.6700	2.3549
Na ₂ O	0.6600	0.8421
K ₂ O	4.5900	3.8533
	-----	-----
Total	91.6900	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.73967	
	Al	0.26033	
	Total		4.00000
Octahedral	Al	0.62996	
	Fe ³⁺	0.83969	
	Fe ²⁺	0.15994	
	Mg	0.38108	
	Total		2.01068
Interlayer	Ca	0.12848	
	Na	0.09189	
	K	0.42047	
	Total		0.64084

Tetrahedral layer charge = -0.26033

Octahedral layer charge = -0.50898

Interlayer cation charge = 0.76932

MC31b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	48.3400	65.7816
TiO ₂	0.0900	0.0921
Al ₂ O ₃	7.5500	6.0544
Cr ₂ O ₃	0.0500	0.0269
Fe ₂ O ₃	24.1500	12.3649
MnO	0.0400	0.0461
NiO	0.0600	0.0657
MgO	4.3400	8.8043
CaO	1.0700	1.5601
Na ₂ O	0.0100	0.0132
K ₂ O	5.9800	5.1907
Cl	0.0100	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0023
TOTAL	91.6878	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.61057	
	Al	0.38943	
	Total		4.00000
Octahedral	Al	0.27518	
	Fe ³⁺	1.14018	
	Fe ²⁺	0.21718	
	Mg	0.48324	
	Total		2.11578
Interlayer	Ca	0.08563	
	Na	0.00145	
	K	0.56981	
	Total		0.65688

Tetrahedral layer charge = -0.38943

Octahedral layer charge = -0.35308

Interlayer cation charge = 0.74251

MC31c

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	50.3900	67.9593
TiO ₂	0.0500	0.0507
Al ₂ O ₃	6.2900	4.9990
Cr ₂ O ₃	0.0100	0.0053
Fe ₂ O ₃	23.7400	12.0466
MnO	0.0100	0.0114
NiO	0.0300	0.0325
MgO	3.9800	8.0020
CaO	1.1800	1.7051
Na ₂ O	0.0400	0.0523
K ₂ O	5.9700	5.1358
	-----	-----
Total	91.6900	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.73733	
	Al	0.26267	
	Total		4.00000
Octahedral	Al	0.28716	
	Fe ³⁺	1.11297	
	Fe ²⁺	0.21200	
	Mg	0.44006	
	Total		2.05219
Interlayer	Ca	0.09377	
	Na	0.00575	
	K	0.56487	
	Total		0.66439

Tetrahedral layer charge = -0.26266

Octahedral layer charge = -0.49550

Interlayer cation charge = 0.75816

MC31d

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	53.8200	70.5950
TiO ₂	0.0400	0.0395
Al ₂ O ₃	7.8600	6.0755
Cr ₂ O ₃	0.0430	0.0223
Fe ₂ O ₃	19.7600	9.7520
NiO	0.0100	0.0106
MgO	3.6900	7.2155
CaO	1.3800	1.9394
Na ₂ O	0.2300	0.2925
K ₂ O	4.8500	4.0579
Cl	0.0100	
	-----	-----
Total	91.6930	100.0000
	O=F+Cl	0.0023
TOTAL	91.6908	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.87078	
	Al	0.12922	
	Total		4.00000
Octahedral	Al	0.53702	
	Fe ³⁺	0.89831	
	Fe ²⁺	0.17111	
	Mg	0.39563	
	Total		2.00207
Interlayer	Ca	0.10634	
	Na	0.03207	
	K	0.44499	
	Total		0.58341

Tetrahedral layer charge = -0.12922

Octahedral layer charge = -0.56052

Interlayer cation charge = 0.68974

MC33

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	49.6000	66.2186
TiO ₂	0.4200	0.4217
Al ₂ O ₃	10.3000	8.1033
Cr ₂ O ₃	0.0300	0.0158
Fe ₂ O ₃	20.6000	10.3477
MnO	0.0300	0.0339
NiO	0.0300	0.0322
MgO	4.2200	8.3988
CaO	1.6300	2.3315
Na ₂ O	0.0200	0.0259
K ₂ O	4.7800	4.0706
Cl	0.0300	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0068
TOTAL	91.6832	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.62460	
	Al	0.37540	
	Total		4.00000
Octahedral	Al	0.51170	
	Fe ³⁺	0.95155	
	Fe ²⁺	0.18125	
	Mg	0.45973	
Total			2.10423
Interlayer	Ca	0.12762	
	Na	0.00283	
	K	0.44562	
	Total		

Tetrahedral layer charge = -0.37540

Octahedral layer charge = -0.32830

Interlayer cation charge = 0.70370

MC38a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	51.2200	67.7372
TiO ₂	0.0900	0.0895
Al ₂ O ₃	11.0200	8.5881
Fe ₂ O ₃	18.7900	9.3496
MnO	0.0200	0.0224
MgO	4.0400	7.9648
CaO	1.2500	1.7711
Na ₂ O	0.1300	0.1667
K ₂ O	5.1100	4.3106
Cl	0.0200	
	-----	-----
Total	91.6900	100.0000
O=F+Cl	0.0045	
TOTAL	91.6855	

CLAY-MINERAL STRUCTURAL FORMULA.

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.68858	
	Al	0.31142	
	Total		4.00000
Octahedral	Al	0.62389	
	Fe ³⁺	0.85533	
	Fe ²⁺	0.16292	
	Mg	0.43372	
	Total		2.07585
Interlayer	Ca	0.09645	
	Na	0.01815	
	K	0.46946	
	Total		0.58406

Tetrahedral layer charge = -0.31142

Octahedral layer charge = -0.36908

Interlayer cation charge = 0.68050

MC38b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	50.4000	67.5521
TiO ₂	0.0600	0.0605
Al ₂ O ₃	9.0000	7.1085
Cr ₂ O ₃	0.0300	0.0159
Fe ₂ O ₃	22.0400	11.1147
MnO	0.0300	0.0341
NiO	0.0200	0.0216
MgO	4.1700	8.3321
CaO	1.1800	1.6945
Na ₂ O	0.0500	0.0650
K ₂ O	4.6800	4.0011
Cl	0.0200	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0045
TOTAL	91.6755	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.67698	
	Al	0.32302	
	Total		4.00000
Octahedral	Al	0.45083	
	Fe ³⁺	1.01639	
	Fe ²⁺	0.19360	
	Mg	0.45353	
	Total		2.11434
Interlayer	Ca	0.09224	
	Na	0.00707	
	K	0.43558	
	Total		0.53489

Tetrahedral layer charge = -0.32302

Octahedral layer charge = -0.30410

Interlayer cation charge = 0.62712

MC1d

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	48.0100	64.1188
TiO ₂	0.0100	0.0100
Al ₂ O ₃	4.4000	3.4628
Cr ₂ O ₃	0.0800	0.0422
Fe ₂ O ₃	23.1600	11.6378
MnO	0.0100	0.0113
NiO	0.0100	0.0107
MgO	4.3800	8.7204
CaO	0.4200	0.6010
Na ₂ O	4.2600	5.5154
K ₂ O	6.8900	5.8695
Cl	0.0400	
	-----	-----
Total	91.6700	100.0000
	O=F+Cl	0.0090
TOTAL	91.6610	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.66615	
	Al	0.33385	
	Total		4.00000
Octahedral	Al	0.06214	
	Fe ³⁺	1.11790	
	Fe ²⁺	0.21293	
	Mg	0.49861	
	Total		1.89158
Interlayer	Ca	0.03436	
	Na	0.63072	
	K	0.67121	
	Total		1.33629

Tetrahedral layer charge = -0.33385

Octahedral layer charge = -1.03680

Interlayer cation charge = 1.37065

MC5a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	50.0500	66.3658
TiO ₂	0.0900	0.0897
Al ₂ O ₃	9.1700	7.1653
Cr ₂ O ₃	0.0600	0.0315
Fe ₂ O ₃	19.9800	9.9681
MnO	0.0100	0.0112
NiO	0.0100	0.0107
MgO	4.8200	9.5279
CaO	0.8300	1.1792
Na ₂ O	0.0400	0.0514
K ₂ O	6.6200	5.5992
Cl	0.0100	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0023
TOTAL	91.6878	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.67040	
	Al	0.32960	
	Total		4.00000
Octahedral	Al	0.46297	
	Fe ³⁺	0.92617	
	Fe ²⁺	0.17641	
	Mg	0.52695	
	Total		2.09250
Interlayer	Ca	0.06521	
	Na	0.00569	
	K	0.61934	
	Total		0.69024

Tetrahedral layer charge = -0.32960

Octahedral layer charge = -0.42586

Interlayer cation charge = 0.75545

MC13

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	50.5600	66.4231
TiO ₂	0.1800	0.1778
Al ₂ O ₃	11.0100	8.5236
Fe ₂ O ₃	16.9300	8.3685
MnO	0.0100	0.0111
NiO	0.0600	0.0634
MgO	3.5100	6.8743
CaO	2.8300	3.9834
Na ₂ O	0.1200	0.1528
K ₂ O	6.4700	5.4218
	-----	-----
Total	91.6800	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.67873	
	Al	0.32127	
	Total		4.00000
Octahedral	Al	0.62286	
	Fe ³⁺	0.77864	
	Fe ²⁺	0.14831	
	Mg	0.38072	
	Total		1.93053
Interlayer	Ca	0.22061	
	Na	0.01693	
	K	0.60056	
	Total		0.83810

Tetrahedral layer charge = -0.32127

Octahedral layer charge = -0.73744

Interlayer cation charge = 1.05871

MC15

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	47.8800	65.2154
TiO ₂	0.0300	0.0307
Al ₂ O ₃	5.9900	4.8078
Cr ₂ O ₃	0.0700	0.0377
Fe ₂ O ₃	24.2500	12.4275
MnO	0.0100	0.0115
NiO	0.0200	0.0219
MgO	4.7900	9.7261
CaO	0.4000	0.5837
Na ₂ O	0.0100	0.0132
K ₂ O	8.2000	7.1242
Cl	0.0100	
	-----	-----
Total	91.6600	100.0000
	O=F+Cl	0.0023
TOTAL	91.6577	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.63049	
	Al	0.36951	
	Total		4.00000
Octahedral	Al	0.16578	
	Fe ³⁺	1.16228	
	Fe ²⁺	0.22139	
	Mg	0.54145	
	Total		2.09089
Interlayer	Ca	0.03250	
	Na	0.00147	
	K	0.79320	
	Total		0.82717

Tetrahedral layer charge = -0.36951

Octahedral layer charge = -0.49015

Interlayer cation charge = 0.85966

MC16

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	45.7400	63.5636
TiO ₂	0.0300	0.0314
Al ₂ O ₃	6.2200	5.0936
Cr ₂ O ₃	0.0500	0.0275
Fe ₂ O ₃	27.1900	14.2167
MnO	0.0200	0.0235
NiO	0.0300	0.0335
MgO	4.4700	9.2604
CaO	1.1800	1.7569
Na ₂ O	0.0400	0.0539
K ₂ O	6.7000	5.9390
Cl	0.0100	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0023
TOTAL	91.6777	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.49961	
	Al	0.50039	
	Total		4.00000
Octahedral	Al	0.06049	
	Fe ³⁺	1.31498	
	Fe ²⁺	0.25047	
	Mg	0.50985	
	Total		2.13578
Interlayer	Ca	0.09673	
	Na	0.00593	
	K	0.65397	
	Total		0.75663

Tetrahedral layer charge = -0.50039

Octahedral layer charge = -0.35297

Interlayer cation charge = 0.85336

MC18

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	48.3400	65.5180
TiO ₂	0.0500	0.0510
Al ₂ O ₃	5.9700	4.7682
Cr ₂ O ₃	0.0600	0.0321
Fe ₂ O ₃	23.8400	12.1573
MnO	0.0100	0.0115
NiO	0.0400	0.0436
MgO	4.6900	9.4762
CaO	0.7300	1.0601
Na ₂ O	0.0200	0.0263
K ₂ O	7.9300	6.8558
	-----	-----
Total	91.6800	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.65307	
	Al	0.34693	
	Total		4.00000
Octahedral	Al	0.18479	
	Fe ³⁺	1.13879	
	Fe ²⁺	0.21691	
	Mg	0.52836	
	Total		2.06885
Interlayer	Ca	0.05911	
	Na	0.00293	
	K	0.76451	
	Total		0.82655

Tetrahedral layer charge = -0.34693

Octahedral layer charge = -0.53872

Interlayer cation charge = 0.88565

MC19b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	49.3600	66.7018
TiO ₂	0.0300	0.0305
Al ₂ O ₃	4.1200	3.2808
Cr ₂ O ₃	0.0400	0.0214
Fe ₂ O ₃	25.3800	12.9042
MnO	0.0100	0.0114
NiO	0.0200	0.0217
MgO	5.0400	10.1532
CaO	0.4200	0.6081
Na ₂ O	0.0200	0.0262
K ₂ O	7.2400	6.2406
Cl	0.0100	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0023
TOTAL	91.6877	

CLAY-MINERAL STRUCTURAL FORMULA.

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.72594	
	Al	0.27406	
	Total		4.00000
Octahedral	Al	0.09247	
	Fe ³⁺	1.21098	
	Fe ²⁺	0.23066	
	Mg	0.56715	
Total			2.10127
Interlayer	Ca	0.03397	
	Na	0.00293	
	K	0.69720	
	Total		

Tetrahedral layer charge = -0.27406

Octahedral layer charge = -0.49400

Interlayer cation charge = 0.76806

MC20

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	50.5000	67.8873
TiO ₂	0.0300	0.0303
Al ₂ O ₃	5.9700	4.7293
Cr ₂ O ₃	0.0500	0.0266
Fe ₂ O ₃	22.6800	11.4714
MnO	0.0300	0.0342
NiO	0.0300	0.0324
MgO	4.2000	8.4170
CaO	0.6200	0.8930
Na ₂ O	0.0100	0.0130
K ₂ O	7.5400	6.4654
Cl	0.0200	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0045
TOTAL	91.6755	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.76525	
	Al	0.23475	
	Total		4.00000
Octahedral	Al	0.28985	
	Fe ³⁺	1.06889	
	Fe ²⁺	0.20360	
	Mg	0.46683	
	Total		2.02917
Interlayer	Ca	0.04953	
	Na	0.00145	
	K	0.71719	
	Total		0.76816

Tetrahedral layer charge = -0.23475

Octahedral layer charge = -0.58293

Interlayer cation charge = 0.81769

MC21

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	49.3700	66.8943
TiO ₂	0.0300	0.0306
Al ₂ O ₃	3.6300	2.8984
Cr ₂ O ₃	0.0100	0.0054
Fe ₂ O ₃	25.8500	13.1784
MnO	0.0100	0.0115
NiO	0.0300	0.0327
MgO	4.7900	9.6754
CaO	0.6700	0.9727
K ₂ O	7.2900	6.3006
Cl	0.0100	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0023
TOTAL	91.6877	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.73789	
	Al	0.26211	
	Total		4.00000
Octahedral	Al	0.06180	
	Fe ³⁺	1.23711	
	Fe ²⁺	0.23564	
	Mg	0.54064	
Total			2.07519
Interlayer	Ca	0.05435	
	K	0.70412	
	Total		

Tetrahedral layer charge = -0.26211

Octahedral layer charge = -0.55071

Interlayer cation charge = 0.81282

MC23

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	51.9800	69.3837
TiO ₂	0.0200	0.0201
Al ₂ O ₃	5.3200	4.1846
Cr ₂ O ₃	0.0500	0.0264
Fe ₂ O ₃	22.5100	11.3051
MnO	0.0200	0.0226
MgO	4.1500	8.2581
CaO	0.5300	0.7580
Na ₂ O	0.0300	0.0388
K ₂ O	7.0500	6.0026
Cl	0.0200	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0045
TOTAL	91.6755	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.84523	
	Al	0.15477	
	Total		4.00000
Octahedral	Al	0.30905	
	Fe ³⁺	1.05256	
	Fe ²⁺	0.20049	
	Mg	0.45766	
Total			2.01976
Interlayer	Ca	0.04201	
	Na	0.00430	
	K	0.66532	
	Total		

Tetrahedral layer charge = -0.15477

Octahedral layer charge = -0.59887

Interlayer cation charge = 0.75364

MC24

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	51.3600	69.0045
TiO ₂	0.0400	0.0404
Al ₂ O ₃	5.0100	3.9666
Cr ₂ O ₃	0.0300	0.0159
Fe ₂ O ₃	23.3500	11.8037
MnO	0.0200	0.0228
NiO	0.0100	0.0108
MgO	4.1500	8.3121
CaO	0.3700	0.5326
Na ₂ O	0.0200	0.0260
K ₂ O	7.3100	6.2647
Cl	0.0100	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0023
TOTAL	91.6777	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.82265	
	Al	0.17735	
	Total		4.00000
Octahedral	Al	0.26212	
	Fe ³⁺	1.09853	
	Fe ²⁺	0.20924	
	Mg	0.46046	
	Total		2.03036
Interlayer	Ca	0.02951	
	Na	0.00289	
	K	0.69409	
	Total		0.72648

Tetrahedral layer charge = -0.17735

Octahedral layer charge = -0.57863

Interlayer cation charge = 0.75599

MC26

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	49.0600	66.4115
TiO ₂	0.0200	0.0204
Al ₂ O ₃	4.2900	3.4221
Cr ₂ O ₃	0.0500	0.0268
Fe ₂ O ₃	25.8300	13.1558
MnO	0.0100	0.0115
NiO	0.0400	0.0436
MgO	5.0200	10.1304
CaO	0.7200	1.0443
Na ₂ O	0.0200	0.0262
K ₂ O	6.6100	5.7075
	-----	-----
Total	91.6700	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.70149	
	Al	0.29851	
	Total		4.00000
Octahedral	Al	0.08296	
	Fe ³⁺	1.23185	
	Fe ²⁺	0.23464	
	Mg	0.56463	
Total			2.11408
Interlayer	Ca	0.05820	
	Na	0.00293	
	K	0.63622	
	Total		

Tetrahedral layer charge = -0.29851

Octahedral layer charge = -0.45703

Interlayer cation charge = 0.75555

MC27a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	48.2300	66.0182
TiO ₂	0.0400	0.0412
Al ₂ O ₃	3.3300	2.6861
Cr ₂ O ₃	0.0100	0.0054
Fe ₂ O ₃	27.1100	13.9622
MnO	0.0300	0.0348
MgO	4.8900	9.9785
CaO	0.5600	0.8213
K ₂ O	7.3900	6.4524
Cl	0.0500	
	-----	-----
Total	91.6400	100.0000
O=F+Cl	0.0113	
TOTAL	91.6287	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.68631	
	Al	0.29997	
	Total		3.98628
Octahedral	Fe ³⁺	1.30976	
	Fe ²⁺	0.24948	
	Mg	0.55718	
	Total		2.11641
Interlayer	Ca	0.04586	
	K	0.72057	
	Total		0.76643

Tetrahedral layer charge = -0.35487

Octahedral layer charge = -0.45743

Interlayer cation charge = 0.81229

MC27b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	47.9900	65.0684
TiO ₂	0.0300	0.0306
Al ₂ O ₃	3.1200	2.4929
Cr ₂ O ₃	0.0400	0.0214
Fe ₂ O ₃	26.1300	13.3302
MnO	0.0300	0.0345
NiO	0.0100	0.0109
MgO	4.8300	9.7628
CaO	1.7400	2.5277
Na ₂ O	0.0400	0.0526
K ₂ O	7.7100	6.6681
	-----	-----
Total	91.6700	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.68026	
	Al	0.28199	
	Total		3.96225
Octahedral	Fe ³⁺	1.26664	
	Fe ²⁺	0.24126	
	Mg	0.55218	
	Total		2.06009
Interlayer	Ca	0.14297	
	Na	0.00595	
	K	0.75429	
	Total		0.90321

Tetrahedral layer charge = -0.43299

Octahedral layer charge = -0.61318

Interlayer cation charge = 1.04617

MC28

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO2	48.1000	65.9862
TiO2	0.0100	0.0103
Al2O3	3.1100	2.5142
Cr2O3	0.0100	0.0054
Fe2O3	27.6500	14.2719
MnO	0.0200	0.0232
NiO	0.0100	0.0110
MgO	4.8700	9.9597
CaO	0.4900	0.7202
Na2O	0.0300	0.0399
K2O	7.3800	6.4579
Cl	0.0100	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0023
TOTAL	91.6877	

CLAY-MINERAL STRUCTURAL FORMULA.

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.68031	
	Al	0.28045	
	Total		3.96076
Octahedral	Fe3+	1.33728	
	Fe2+	0.25472	
	Mg	0.55549	
	Total		2.14749
Interlayer	Ca	0.04017	
	Na	0.00445	
	K	0.72037	
	Total		0.76499

Tetrahedral layer charge = -0.43741

Octahedral layer charge = -0.36775

Interlayer cation charge = 0.80516

MC35

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO2	47.9500	66.0148
TiO2	0.0300	0.0311
Al2O3	5.6200	4.5595
Cr2O3	0.0200	0.0109
Fe2O3	25.8700	13.4007
MnO	0.0100	0.0117
NiO	0.0200	0.0221
MgO	3.8500	7.9017
CaO	1.1100	1.6373
Na2O	0.2300	0.3070
K2O	6.9500	6.1033
Cl	0.0100	
	-----	-----
Total	91.6700	100.0000
	O=F+Cl	0.0023
TOTAL	91.6677	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.63599	
	Al	0.36401	
	Total		4.00000
Octahedral	Al	0.13825	
	Fe3+	1.23999	
	Fe2+	0.23619	
	Mg	0.43521	
	Total		2.04964
Interlayer	Ca	0.09018	
	Na	0.03381	
	K	0.67232	
	Total		0.79632

Tetrahedral layer charge = -0.36401

Octahedral layer charge = -0.52249

Interlayer cation charge = 0.88650

MC36b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	46.1000	63.8193
Al ₂ O ₃	4.0000	3.2631
Cr ₂ O ₃	0.0100	0.0055
Fe ₂ O ₃	27.0800	14.1051
MnO	0.0100	0.0117
NiO	0.0100	0.0111
MgO	4.2900	8.8535
CaO	1.5300	2.2693
Na ₂ O	0.0500	0.0671
K ₂ O	8.6000	7.5941
Cl	0.0100	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0023
TOTAL	91.6878	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.57675	
	Al	0.36577	
	Total		3.94252
Octahedral	Fe ³⁺	1.32808	
	Fe ²⁺	0.25297	
	Mg	0.49620	
	Total		2.07724
Interlayer	Ca	0.12719	
	Na	0.00752	
	K	0.85123	
	Total		0.98593

Tetrahedral layer charge = -0.59568

Octahedral layer charge = -0.51744

Interlayer cation charge = 1.11312

MC39a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	42.0300	58.7985
TiO ₂	0.1300	0.1368
Al ₂ O ₃	13.5500	11.1705
Cr ₂ O ₃	0.0200	0.0111
Fe ₂ O ₃	26.3100	13.8486
MnO	0.0100	0.0118
NiO	0.0100	0.0113
MgO	5.2600	10.9699
CaO	1.7900	2.6830
Na ₂ O	0.1600	0.2170
K ₂ O	2.4000	2.1416
	-----	-----
Total	91.6700	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.13288	
	Al	0.86712	
	Total		4.00000
Octahedral	Al	0.32325	
	Fe ³⁺	1.23963	
	Fe ²⁺	0.23612	
	Mg	0.58449	
Total			2.38349
Interlayer	Ca	0.14295	
	Na	0.02312	
	K	0.22822	
	Total		

Tetrahedral layer charge = -0.86712

Octahedral layer charge = 0.32986

Interlayer cation charge = 0.53725

MC39b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	49.4200	66.4574
TiO ₂	0.0900	0.0910
Al ₂ O ₃	7.1900	5.6976
Cr ₂ O ₃	0.0200	0.0106
Fe ₂ O ₃	23.1600	11.7181
MnO	0.0600	0.0683
NiO	0.0500	0.0541
MgO	4.6800	9.3820
CaO	0.7800	1.1238
Na ₂ O	0.1000	0.1304
K ₂ O	6.1400	5.2667
Cl	0.0100	
	-----	-----
Total	91.7000	100.0000
	O=F+Cl	0.0023
TOTAL	91.6977	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.67002	
	Al	0.32998	
	Total		4.00000
Octahedral	Al	0.29931	
	Fe ³⁺	1.08715	
	Fe ²⁺	0.20708	
	Mg	0.51811	
	Total		2.11165
Interlayer	Ca	0.06206	
	Na	0.01440	
	K	0.58169	
	Total		0.65815

Tetrahedral layer charge = -0.32998

Octahedral layer charge = -0.39023

Interlayer cation charge = 0.72021

MC44

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	48.7800	66.6871
Al ₂ O ₃	4.8600	3.9153
Cr ₂ O ₃	0.0100	0.0054
Fe ₂ O ₃	25.4800	13.1062
MnO	0.0100	0.0116
NiO	0.0200	0.0220
MgO	4.5100	9.1915
CaO	0.1200	0.1758
Na ₂ O	0.0300	0.0398
K ₂ O	7.8500	6.8454
Cl	0.0100	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0023
TOTAL	91.6777	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.69376	
	Al	0.30624	
	Total		4.00000
Octahedral	Al	0.12749	
	Fe ³⁺	1.21959	
	Fe ²⁺	0.23230	
	Mg	0.50911	
Total			2.08848
Interlayer	Ca	0.00974	
	Na	0.00440	
	K	0.75832	
	Total		

Tetrahedral layer charge = -0.30624

Octahedral layer charge = -0.47596

Interlayer cation charge = 0.78220

MC45

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	47.4900	64.9385
TiO ₂	0.0200	0.0206
Al ₂ O ₃	8.8700	7.1474
Cr ₂ O ₃	0.0300	0.0162
Fe ₂ O ₃	23.2200	11.9465
MnO	0.0100	0.0116
NiO	0.0100	0.0110
MgO	4.4000	8.9694
CaO	0.5000	0.7325
Na ₂ O	0.0300	0.0398
K ₂ O	7.0700	6.1666
	-----	-----
Total	91.6500	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.55110	
	Al	0.44890	
	Total		4.00000
Octahedral	Al	0.33280	
	Fe ³⁺	1.09751	
	Fe ²⁺	0.20905	
	Mg	0.49048	
Total			2.12984
Interlayer	Ca	0.04006	
	Na	0.00435	
	K	0.67443	
	Total		

Tetrahedral layer charge = -0.44890

Octahedral layer charge = -0.31000

Interlayer cation charge = 0.75890

MC1c

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	49.1700	66.3246
TiO ₂	0.0600	0.0609
Al ₂ O ₃	8.3200	6.6134
Cr ₂ O ₃	0.0300	0.0160
Fe ₂ O ₃	21.9800	11.1552
MnO	0.0400	0.0457
NiO	0.0100	0.0108
MgO	4.3200	8.6869
CaO	0.6700	0.9683
Na ₂ O	0.0400	0.0523
K ₂ O	7.0500	6.0659
Cl	0.0100	
	-----	-----
Total	91.7000	100.0000
	O=F+Cl	0.0023
TOTAL	91.6977	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.64888	
	Al	0.35112	
	Total		4.00000
Octahedral	Al	0.37656	
	Fe ³⁺	1.03104	
	Fe ²⁺	0.19639	
	Mg	0.47792	
	Total		2.08190
Interlayer	Ca	0.05327	
	Na	0.00576	
	K	0.66743	
	Total		0.72646

Tetrahedral layer charge = -0.35112

Octahedral layer charge = -0.42861

Interlayer cation charge = 0.77973

MC5b

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	50.2200	66.8906
TiO ₂	0.0500	0.0501
Al ₂ O ₃	5.4200	4.2542
Cr ₂ O ₃	0.0500	0.0263
Fe ₂ O ₃	22.7000	11.3760
MnO	0.0300	0.0338
NiO	0.0400	0.0429
MgO	4.9900	9.9083
CaO	0.7500	1.0703
Na ₂ O	0.0600	0.0775
K ₂ O	7.3800	6.2701
Cl	0.0100	
	-----	-----
Total	91.7000	100.0000
	O=F+Cl	0.0023
TOTAL	91.6977	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.75066	
	Al	0.24934	
	Total		4.00000
Octahedral	Al	0.22774	
	Fe ³⁺	1.07163	
	Fe ²⁺	0.20412	
	Mg	0.55557	
	Total		2.05906
Interlayer	Ca	0.06001	
	Na	0.00869	
	K	0.70315	
	Total		0.77185

Tetrahedral layer charge = -0.24934

Octahedral layer charge = -0.58252

Interlayer cation charge = 0.83186

MC19a

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	47.1000	64.4045
TiO ₂	0.0300	0.0308
Al ₂ O ₃	6.9600	5.6083
Cr ₂ O ₃	0.0300	0.0162
Fe ₂ O ₃	25.4700	13.1039
MnO	0.0100	0.0116
NiO	0.0300	0.0330
MgO	4.9500	10.0904
CaO	0.8500	1.2453
Na ₂ O	0.0100	0.0133
K ₂ O	6.2400	5.4426
Cl	0.0100	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0023
TOTAL	91.6877	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.54862	
	Al	0.45138	
	Total		4.00000
Octahedral	Al	0.16665	
	Fe ³⁺	1.21298	
	Fe ²⁺	0.23104	
	Mg	0.55597	
Total			2.16664
Interlayer	Ca	0.06861	
	Na	0.00146	
	K	0.59977	
	Total		

Tetrahedral layer charge = -0.45138

Octahedral layer charge = -0.28708

Interlayer cation charge = 0.73846

MC22

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO2	45.8100	62.2603
TiO2	0.0700	0.0715
Al2O3	9.5100	7.6165
Cr2O3	0.0500	0.0269
Fe2O3	24.0400	12.2931
MnO	0.0100	0.0115
NiO	0.0200	0.0219
MgO	5.8200	11.7919
CaO	0.6800	0.9902
Na2O	0.0400	0.0527
K2O	5.6100	4.8634
Cl	0.0100	
	-----	-----
Total	91.6700	100.0000
	O=F+Cl	0.0023
TOTAL	91.6678	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.42464	
	Al	0.57536	
	Total		4.00000
Octahedral	Al	0.26254	
	Fe3+	1.13599	
	Fe2+	0.21638	
	Mg	0.64861	
	Total		2.26353
Interlayer	Ca	0.05447	
	Na	0.00580	
	K	0.53503	
	Total		0.59529

Tetrahedral layer charge = -0.57536

Octahedral layer charge = -0.07440

Interlayer cation charge = 0.64976

MC27c

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	48.8800	66.4453
TiO ₂	0.0300	0.0307
Al ₂ O ₃	3.5800	2.8678
Cr ₂ O ₃	0.0400	0.0215
Fe ₂ O ₃	26.4200	13.5127
NiO	0.0200	0.0219
MgO	5.1400	10.4161
CaO	0.2700	0.3932
Na ₂ O	0.0100	0.0132
K ₂ O	7.2400	6.2777
Cl	0.0500	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0113
TOTAL	91.6687	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.71070	
	Al	0.28930	
	Total		4.00000
Octahedral	Al	0.03101	
	Fe ³⁺	1.26778	
	Fe ²⁺	0.24148	
	Mg	0.58170	
	Total		2.12197
Interlayer	Ca	0.02196	
	Na	0.00147	
	K	0.70117	
	Total		0.72460

Tetrahedral layer charge = -0.28930

Octahedral layer charge = -0.45727

Interlayer cation charge = 0.74656

MC29

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO2	43.3800	59.9687
TiO2	0.0400	0.0416
Al2O3	7.3200	5.9631
Cr2O3	0.0700	0.0383
Fe2O3	27.2800	14.1892
MnO	0.0100	0.0117
NiO	0.0100	0.0111
MgO	5.2000	10.7163
CaO	2.8300	4.1916
Na2O	0.0600	0.0804
K2O	5.4300	4.7881
Cl	0.0600	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0135
TOTAL	91.6765	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.33327	
	Al	0.66290	
	Total		3.99617
Octahedral	Fe3+	1.32499	
	Fe2+	0.25238	
	Mg	0.59565	
	Total		2.17302
Interlayer	Ca	0.23298	
	Na	0.00894	
	K	0.53228	
	Total		0.77420

Tetrahedral layer charge = -0.67821

Octahedral layer charge = -0.32897

Interlayer cation charge = 1.00719

MC30

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	46.2200	64.0112
TiO ₂	0.0100	0.0104
Al ₂ O ₃	6.3300	5.1660
Cr ₂ O ₃	0.0400	0.0219
Fe ₂ O ₃	27.0900	14.1160
MnO	0.0200	0.0235
NiO	0.0300	0.0334
MgO	4.7900	9.8894
CaO	0.7000	1.0387
Na ₂ O	0.0200	0.0269
K ₂ O	6.4100	5.6626
Cl	0.0100	
	-----	-----
Total	91.6700	100.0000
	O=F+Cl	0.0023
TOTAL	91.6677	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.51662	
	Al	0.48338	
	Total		4.00000
Octahedral	Al	0.08423	
	Fe ³⁺	1.30284	
	Fe ²⁺	0.24816	
	Mg	0.54330	
	Total		2.17853
Interlayer	Ca	0.05706	
	Na	0.00295	
	K	0.62217	
	Total		0.68219

Tetrahedral layer charge = -0.48338

Octahedral layer charge = -0.25587

Interlayer cation charge = 0.73925

MC32

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	42.4500	59.3849
TiO ₂	0.0300	0.0316
Al ₂ O ₃	8.1100	6.6857
Cr ₂ O ₃	0.0900	0.0498
Fe ₂ O ₃	28.9600	15.2431
NiO	0.0200	0.0225
MgO	5.8600	12.2209
CaO	1.4100	2.1134
Na ₂ O	0.0400	0.0542
K ₂ O	4.7000	4.1940
Cl	0.0100	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0023
TOTAL	91.6777	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.25478	
	Al	0.73286	
	Total		3.98764
Octahedral	Fe ³⁺	1.40355	
	Fe ²⁺	0.26734	
	Mg	0.66981	
	Total		2.34071
Interlayer	Ca	0.11583	
	Na	0.00595	
	K	0.45973	
	Total		0.58150

Tetrahedral layer charge = -0.78230

Octahedral layer charge = 0.08497

Interlayer cation charge = 0.69733

MC37

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	44.1900	61.9908
TiO ₂	0.7300	0.7701
Al ₂ O ₃	14.5900	12.0610
Cr ₂ O ₃	0.0300	0.0166
Fe ₂ O ₃	22.3700	11.8072
MnO	0.0400	0.0475
NiO	0.0300	0.0339
MgO	3.3100	6.9221
CaO	0.9100	1.3677
Na ₂ O	0.1900	0.2584
K ₂ O	5.2800	4.7246
Cl	0.0100	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0023
TOTAL	91.6777	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.29468	
	Al	0.70532	
	Total		4.00000
Octahedral	Al	0.57671	
	Fe ³⁺	1.05424	
	Fe ²⁺	0.20081	
	Mg	0.36790	
	Total		2.19966
Interlayer	Ca	0.07269	
	Na	0.02747	
	K	0.50221	
	Total		0.60236

Tetrahedral layer charge = -0.70532

Octahedral layer charge = 0.03027

Interlayer cation charge = 0.67505

MC40

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	43.2100	60.7738
TiO ₂	0.0400	0.0423
Al ₂ O ₃	7.2200	5.9840
Cr ₂ O ₃	0.1000	0.0556
Fe ₂ O ₃	29.1000	15.3994
MnO	0.0100	0.0119
NiO	0.0300	0.0339
MgO	5.4100	11.3433
CaO	1.0200	1.5371
Na ₂ O	0.0600	0.0818
K ₂ O	5.2800	4.7369
Cl	0.2000	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0451
TOTAL	91.6349	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.32704	
	Al	0.65519	
	Total		3.98223
Octahedral	Fe ³⁺	1.41629	
	Fe ²⁺	0.26977	
	Mg	0.62098	
	Total		2.30705
Interlayer	Ca	0.08415	
	Na	0.00896	
	K	0.51864	
	Total		0.61174

Tetrahedral layer charge = -0.72627

Octahedral layer charge = 0.03039

Interlayer cation charge = 0.69589

MC41

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	41.2800	57.8053
TiO ₂	0.0100	0.0105
Al ₂ O ₃	9.9400	8.2024
Cr ₂ O ₃	0.1000	0.0554
Fe ₂ O ₃	27.0200	14.2361
MnO	0.0200	0.0237
NiO	0.0200	0.0225
MgO	5.5500	11.5859
CaO	0.7000	1.0502
Na ₂ O	1.5500	2.1042
K ₂ O	5.4900	4.9038
Cl	0.0100	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0023
TOTAL	91.6877	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.17465	
	Al	0.82535	
	Total		4.00000
Octahedral	Al	0.07560	
	Fe ³⁺	1.31350	
	Fe ²⁺	0.25019	
	Mg	0.63629	
	Total		2.27558
Interlayer	Ca	0.05768	
	Na	0.23112	
	K	0.53863	
	Total		0.82742

Tetrahedral layer charge = -0.82535

Octahedral layer charge = -0.05975

Interlayer cation charge = 0.88510

MC42

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	48.7500	66.0370
TiO ₂	0.1000	0.1019
Al ₂ O ₃	7.8000	6.2263
Cr ₂ O ₃	0.0500	0.0268
Fe ₂ O ₃	23.1900	11.8193
MnO	0.0400	0.0459
NiO	0.0100	0.0109
MgO	4.3400	8.7642
CaO	0.9900	1.4368
Na ₂ O	0.0600	0.0788
K ₂ O	6.3100	5.4522
Cl	0.0500	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0113
TOTAL	91.6787	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.63110	
	Al	0.36890	
	Total		4.00000
Octahedral	Al	0.31582	
	Fe ³⁺	1.09182	
	Fe ²⁺	0.20797	
	Mg	0.48190	
	Total		2.09751
Interlayer	Ca	0.07901	
	Na	0.00866	
	K	0.59959	
	Total		0.68726

Tetrahedral layer charge = -0.36890

Octahedral layer charge = -0.39736

Interlayer cation charge = 0.76626

MC43

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	48.9500	66.0399
TiO ₂	0.0500	0.0507
Al ₂ O ₃	10.5700	8.4034
Cr ₂ O ₃	0.0400	0.0213
Fe ₂ O ₃	20.9300	10.6243
MnO	0.0300	0.0343
NiO	0.0200	0.0217
MgO	4.1900	8.4271
CaO	0.7200	1.0407
Na ₂ O	0.0600	0.0785
K ₂ O	6.1100	5.2580
Cl	0.0100	
	-----	-----
Total	91.6800	100.0000
	O=F+Cl	0.0023
TOTAL	91.6777	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.59148	
	Al	0.40852	
	Total		4.00000
Octahedral	Al	0.50549	
	Fe ³⁺	0.97068	
	Fe ²⁺	0.18489	
	Mg	0.45829	
	Total		2.11936
Interlayer	Ca	0.05660	
	Na	0.00854	
	K	0.57190	
	Total		0.63704

Tetrahedral layer charge = -0.40852

Octahedral layer charge = -0.28511

Interlayer cation charge = 0.69363

MC17

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	47.7800	64.5883
TiO ₂	0.0300	0.0305
Al ₂ O ₃	4.0500	3.2262
Cr ₂ O ₃	0.0400	0.0214
Fe ₂ O ₃	25.8100	13.1272
MnO	0.0100	0.0114
NiO	0.0100	0.0109
MgO	5.7100	11.5067
CaO	0.6200	0.8980
Na ₂ O	0.0200	0.0262
K ₂ O	7.6000	6.5531
	-----	-----
Total	91.6800	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.64119	
	Al	0.35881	
	Total		4.00000
Octahedral	Al	0.00495	
	Fe ³⁺	1.24329	
	Fe ²⁺	0.23682	
	Mg	0.64870	
	Total		2.13375
Interlayer	Ca	0.05062	
	Na	0.00296	
	K	0.73887	
	Total		0.79245

Tetrahedral layer charge = -0.35881

Octahedral layer charge = -0.48426

Interlayer cation charge = 0.84307

MC27d

CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO2	51.0400	67.6728
TiO2	0.4200	0.4188
Al2O3	7.1200	5.5630
Cr2O3	0.0100	0.0052
Fe2O3	21.9800	10.9650
MnO	0.0300	0.0337
NiO	0.0100	0.0107
MgO	4.9100	9.7049
CaO	0.6800	0.9660
Na2O	0.2500	0.3213
K2O	5.1300	4.3386
Cl	0.1100	
	-----	-----
Total	91.6900	100.0000
	O=F+Cl	0.0248
TOTAL	91.6652	

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.75002	
	Al	0.24998	
	Total		4.00000
Octahedral	Al	0.36655	
	Fe3+	1.02079	
	Fe2+	0.19444	
	Mg	0.53779	
Total			2.11957
Interlayer	Ca	0.05353	
	Na	0.03561	
	K	0.48084	
	Total		

Tetrahedral layer charge = -0.24998

Octahedral layer charge = -0.37352

Interlayer cation charge = 0.62351

Section D10

ELECTRON MICROPROBE DATA: FORMATION AVERAGE

All the samples analysed in a formation were averaged to calculate the average wt% composition of glauconite for each formation. The clayform program was then used to calculate the average mineral glauconite formula for each formation.

Pukemiro Sandstone

AVERAGE CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	47.7700	66.2303
TiO ₂	0.0500	0.0521
Al ₂ O ₃	8.6100	7.0344
Fe ₂ O ₃	24.4900	12.7752
MnO	0.0200	0.0235
MgO	3.5600	7.3580
CaO	0.3300	0.4902
Na ₂ O	0.0300	0.0403
K ₂ O	6.7800	5.9960
	-----	-----
Total	91.6400	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.57597	
	Al	0.42403	
	Total		4.00000
Octahedral	Al	0.33560	
	Fe ³⁺	1.15882	
	Fe ²⁺	0.22073	
	Mg	0.39728	
	Total		2.11242
Interlayer	Ca	0.02647	
	Na	0.00435	
	K	0.64748	
	Total		0.67830

Tetrahedral layer charge = -0.42403

Octahedral layer charge = -0.28074

Interlayer cation charge = 0.70477

Mangakotuku Siltstone

AVERAGE CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	49.2100	67.4464
TiO ₂	0.0400	0.0412
Al ₂ O ₃	7.8300	6.3240
Fe ₂ O ₃	23.4900	12.1134
MnO	0.0200	0.0232
MgO	3.6700	7.4986
CaO	0.6700	0.9839
Na ₂ O	0.0200	0.0266
K ₂ O	6.3400	5.5427
	-----	-----
Total	91.2900	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.66704	
	Al	0.33296	
	Total		4.00000
Octahedral	Al	0.35471	
	Fe ³⁺	1.10645	
	Fe ²⁺	0.21075	
	Mg	0.40770	
	Total		2.07961
Interlayer	Ca	0.05349	
	Na	0.00289	
	K	0.60271	
	Total		0.65909

Tetrahedral layer charge = -0.33296

Octahedral layer charge = -0.37963

Interlayer cation charge = 0.71259

Elgood Limestone

AVERAGE CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	44.2500	62.6741
TiO ₂	0.0500	0.0533
Al ₂ O ₃	7.5700	6.3182
Fe ₂ O ₃	28.1000	14.9747
MnO	0.0200	0.0240
MgO	3.8600	8.1502
CaO	0.8900	1.3506
Na ₂ O	0.2400	0.3295
K ₂ O	6.7800	6.1254
	-----	-----
Total	91.7600	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.39970	
	Al	0.60030	
	Total		4.00000
Octahedral	Al	0.08516	
	Fe ³⁺	1.36465	
	Fe ²⁺	0.25993	
	Mg	0.44210	
	Total		2.15184
Interlayer	Ca	0.07326	
	Na	0.03575	
	K	0.66453	
	Total		0.77354

Tetrahedral layer charge = -0.60030

Octahedral layer charge = -0.24651

Interlayer cation charge = 0.84681

Whaingaroa Siltstone

AVERAGE CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	50.2000	66.9461
TiO ₂	0.1200	0.1203
Al ₂ O ₃	8.4100	6.6091
Fe ₂ O ₃	21.5100	10.7929
MnO	0.0200	0.0226
MgO	4.0700	8.0914
CaO	2.0200	2.8862
Na ₂ O	0.0900	0.1164
K ₂ O	5.1900	4.4149
	-----	-----
Total	91.6300	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.68424	
	Al	0.31576	
	Total		4.00000
Octahedral	Al	0.41168	
	Fe ³⁺	0.99786	
	Fe ²⁺	0.19007	
	Mg	0.44529	
	Total		2.04491
Interlayer	Ca	0.15884	
	Na	0.01281	
	K	0.48593	
	Total		0.65757

Tetrahedral layer charge = -0.31576

Octahedral layer charge = -0.50065

Interlayer cation charge = 0.81641

Aotea Sandstone

AVERAGE CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	48.3100	65.3037
TiO ₂	0.0600	0.0610
Al ₂ O ₃	5.7200	4.5564
Fe ₂ O ₃	24.1700	12.2929
MnO	0.0200	0.0229
MgO	4.4900	9.0481
CaO	1.6600	2.4042
Na ₂ O	0.2100	0.2752
K ₂ O	7.0000	6.0357
	-----	-----
Total	91.6400	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.64730	
	Al	0.35270	
	Total		4.00000
Octahedral	Al	0.15626	
	Fe ³⁺	1.15345	
	Fe ²⁺	0.21970	
	Mg	0.50535	
	Total		2.03475
Interlayer	Ca	0.13428	
	Na	0.03074	
	K	0.67420	
	Total		0.83922

Tetrahedral layer charge = -0.35270

Octahedral layer charge = -0.62079

Interlayer cation charge = 0.97350

Orabiri Limestone

AVERAGE CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	45.6900	62.7781
TiO ₂	0.1600	0.1653
Al ₂ O ₃	8.3300	6.7446
Fe ₂ O ₃	25.1100	12.9811
MnO	0.0500	0.0582
MgO	4.9300	10.0982
CaO	1.0900	1.6046
Na ₂ O	0.2600	0.3463
K ₂ O	5.9600	5.2235
	-----	-----
Total	91.5800	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.45402	
	Al	0.54598	
	Total		4.00000
Octahedral	Al	0.19619	
	Fe ³⁺	1.19988	
	Fe ²⁺	0.22855	
	Mg	0.55560	
Total			2.18022
Interlayer	Ca	0.08829	
	Na	0.03811	
	K	0.57479	
	Total		

Tetrahedral layer charge = -0.54598

Octahedral layer charge = -0.24349

Interlayer cation charge = 0.78947

Waitomo Sandstone

AVERAGE CHEMICAL ANALYSIS

	weight %	mole %
	-----	-----
SiO ₂	49.0800	65.7203
TiO ₂	0.1800	0.1813
Al ₂ O ₃	5.9600	4.7029
Fe ₂ O ₃	23.8800	12.0311
MnO	0.0200	0.0227
MgO	5.4000	10.7795
CaO	0.8400	1.2051
Na ₂ O	0.1000	0.1298
K ₂ O	6.1200	5.2273
	-----	-----
Total	91.5800	100.0000

CLAY-MINERAL STRUCTURAL FORMULA

2:1 layer clay (mica type)

Oxygen equivalents per formula unit = 11

Tetrahedral	Si	3.66855	
	Al	0.33145	
	Total		4.00000
Octahedral	Al	0.19359	
	Fe ³⁺	1.12827	
	Fe ²⁺	0.21491	
	Total		2.13849
Interlayer	Ca	0.06727	
	Na	0.01449	
	K	0.58358	
	Total		0.66534

Tetrahedral layer charge = -0.33144

Octahedral layer charge = -0.40117

Interlayer cation charge = 0.73261

Section D11

ELECTRON MICROPROBE DATA: UNMODIFIED TRANSECT

The unmodified wt% analysis data for transect points 1 to 10 of Compton (1989) are listed.

Analysis Point Number	SiO ₂ wt%	Al ₂ O ₃ wt%	TiO ₂ wt%	Fe ₂ O ₃ wt%	MnO wt%	MgO wt%	CaO wt%	Na ₂ O wt%
1.00	35.58	3.95	0.00	26.42	0.01	4.87	0.44	0.00
2.00	38.71	4.19	0.04	27.92	0.02	4.35	0.53	0.01
3.00	34.14	4.47	0.03	27.40	0.00	4.89	0.43	0.01
4.00	30.54	5.34	0.00	26.46	0.00	4.45	0.49	0.03
5.00	27.52	4.05	0.02	27.05	0.00	4.76	0.42	0.00
6.00	22.79	3.19	0.03	27.79	0.00	4.88	0.32	0.00
7.00	17.39	2.54	0.12	30.14	0.02	4.08	0.37	0.01
8.00	15.63	1.78	0.02	27.51	0.00	3.88	0.26	0.10
9.00	13.96	1.50	0.02	27.36	0.06	3.55	0.26	0.06
10.00	12.26	1.40	0.00	24.94	0.04	3.59	0.19	0.00

Analysis Point Number	K ₂ O wt %	NiO wt %	Cr ₂ O ₃ wt %	Cl wt %	Total Return wt %
1.00	6.92	0.08	0.01	0.03	78.31
2.00	6.92	0.00	0.05	0.01	82.75
3.00	7.53	0.00	0.03	0.01	78.93
4.00	6.52	0.00	0.07	0.01	73.91
5.00	6.29	0.00	0.00	0.00	70.11
6.00	6.58	0.05	0.01	0.01	65.65
7.00	5.55	0.01	0.00	0.00	60.23
8.00	5.29	0.00	0.00	0.02	54.50
9.00	4.97	0.03	0.00	0.00	51.78
10.00	4.80	0.10	0.02	0.01	47.35