

Occurrence of komatiites in the Sandstone greenstone belt, north-central Yilgarn Craton*

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SUPPLEMENTARY PAPERS

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* Appendix 1 [indicated by an asterisk (*) in the text and listed at the end of the paper] is a Supplementary Paper; copies may be obtained from the Geological Society of Australia's website (www.gsa.org.au) or from the National Library of Australia's Pandora archive (<http://nla.gov.au/nla.arc-25194>).

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APPENDIX 1 Analyses of 42 samples from the Sandstone greenstone belt, including 27 from the komatiite-dominated succession.

		SiO2	TiO2	Al2O3	Fe2O3(tot)	Fe2O3	
	Unit	%	%	%	%	%	
Lithological unit	Detection level	0.01	0.01	0.01	0.01	0.01	
lower basalt	178345	53.51	0.84	14.78	9.51	1.86	
	165366	45.22	1.12	13.43	11.67	1.13	
	165368	50.73	0.66	13.08	12.05	6.65	
	165386	51.13	1.88	12.50	15.65	5.97	
	165389	52.16	0.53	11.57	10.26	3.75	
	165390	50.83	0.97	11.10	11.78	1.55	
	165393	47.92	1.34	13.10	15.16	1.94	
	lower komatiitic basalt	178344	48.09	0.51	9.42	10.77	1.64
	165367	50.71	0.73	8.98	10.31	0.93	
165383	50.62	0.92	7.41	12.76	4.57		
lower komatiite	178343	48.18	0.51	8.99	10.39	1.95	
	165384	47.54	0.29	6.03	9.30	2.93	
	165392	42.53	0.28	6.10	9.74	1.74	
	165394	48.53	0.57	7.50	11.27	1.44	
upper komatiitic basalt	192447	43.14	0.65	8.14	9.46	1.11	
upper komatiite	178332	38.13	0.55	6.54	9.79	1.05	
	178333	45.21	0.58	6.33	10.98	2.83	
	178335	44.27	0.74	8.87	13.64	2.62	
	178336	40.91	0.34	3.95	11.04	4.94	
	178337	48.17	0.63	4.46	11.49	9.05	
	178338	44.98	0.57	7.03	11.00	6.31	
	178339	45.75	0.42	7.36	10.45	5.22	
	178340	43.93	0.45	7.92	10.67	5.29	
	178341	47.06	0.59	6.56	11.52	6.25	
	178342	43.26	0.67	6.58	11.68	3.68	
	165369	45.85	0.59	7.51	13.18	5.30	
	165370	51.38	0.25	4.84	9.24	5.07	
	165371	48.48	0.66	7.38	13.14	10.33	
	165372	47.39	0.42	5.37	11.76	10.09	
	165373	47.72	0.62	7.46	12.01	4.34	
	165374	48.86	0.56	7.12	13.05	9.52	
	165375	48.03	0.55	6.26	11.48	7.88	
	165376	44.97	0.55	7.30	11.64	4.14	
	165377	49.86	0.45	5.82	12.07	7.95	
	165378	44.33	0.29	7.33	9.94	4.00	
	165379	46.79	0.31	8.18	10.10	6.78	
	165380	48.32	0.40	5.86	10.31	7.29	
	165381	45.65	0.32	7.75	11.22	1.95	
	165382	48.37	0.34	7.30	11.14	3.62	
	165385	45.66	0.39	7.35	10.62	5.84	
	165387	49.85	0.60	7.37	11.05	3.49	
	165388	45.70	0.49	5.54	10.61	1.11	

FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3
%	%	%	%	%	%	%	%
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
6.88	0.21	7.11	11.36	2.15	0.12	0.09	0.03
9.48	0.09	7.99	4.96	4.34	0.06	0.13	0.10
4.86	0.10	9.62	3.67	1.36	0.38	0.02	0.00
8.71	0.18	5.78	3.71	2.90	1.40	0.22	0.00
5.85	0.15	10.73	8.21	1.83	0.17	0.01	0.01
9.21	0.16	9.60	9.17	3.33	0.14	0.08	0.02
11.90	0.22	7.48	9.38	1.80	0.17	0.11	0.02
8.22	0.18	16.69	8.71	1.18	0.09	0.06	0.03
8.44	0.15	13.49	6.41	2.92	1.71	0.07	0.02
7.37	0.18	13.20	7.54	1.64	0.05	0.06	0.00
7.60	0.16	17.38	8.55	1.06	0.06	0.06	0.02
5.73	0.13	25.12	2.74	0.13	0.02	0.03	0.00
7.20	0.13	24.44	5.49	0.05	0.01	0.02	0.16
8.84	0.17	17.88	8.17	1.26	0.04	0.06	0.01
7.51	0.16	9.76	8.07	1.37	0.26	0.07	0.41
7.87	0.16	17.86	8.13	0.06	0.02	0.07	0.02
7.34	0.11	21.99	3.27	0.48	0.10	0.08	0.02
9.91	0.18	18.32	5.80	0.48	0.07	0.09	0.07
5.49	0.14	26.50	3.83	0.19	0.02	0.05	0.07
2.19	0.15	20.16	2.48	0.48	0.04	0.06	0.03
4.22	0.15	17.82	6.21	0.65	0.08	0.08	0.02
4.70	0.13	18.85	7.25	0.36	0.05	0.04	0.03
4.84	0.14	19.24	5.04	0.38	0.06	0.05	0.03
4.75	0.11	18.32	5.12	0.51	0.07	0.07	0.02
7.20	0.16	22.30	5.85	0.20	0.04	0.07	0.02
7.09	0.16	18.86	6.24	0.20	0.05	0.05	0.00
3.75	0.05	23.29	0.27	0.18	0.04	0.00	0.00
2.54	0.10	18.70	0.36	0.67	0.08	0.01	0.01
1.50	0.11	19.99	3.48	0.29	0.05	0.05	0.00
6.91	0.13	18.39	6.18	0.51	0.06	0.06	0.00
3.17	0.12	19.06	0.51	0.11	0.05	0.05	0.00
3.24	0.15	18.20	5.26	0.15	0.05	0.05	0.00
6.76	0.15	19.03	6.92	0.11	0.04	0.06	0.00
3.71	0.14	21.26	0.58	0.06	0.03	0.05	0.00
5.34	0.15	22.18	5.55	0.18	0.05	0.02	0.00
2.99	0.12	19.95	4.77	0.77	0.09	0.01	0.00
2.72	0.13	19.10	5.35	0.17	0.07	0.00	0.00
8.34	0.17	22.49	4.63	0.15	0.02	0.02	0.00
6.76	0.06	22.31	0.38	0.57	0.03	0.03	0.00
4.30	0.14	21.04	5.52	0.22	0.07	0.01	0.00
6.80	0.10	18.20	2.97	1.57	0.07	0.06	0.00
8.55	0.12	23.02	4.97	0.06	0.02	0.05	0.01

LOI %	Total %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Cd ppm
0.01		0.01	0.5	10	0.1	0.1	0.1
0.22	99.16	0.04	-0.5	32	0.1	0.2	-0.1
10.83	98.87	0.02	4.4	32	0.4	-0.1	0.09
8.01	99.14	-0.01	2.7	217	0.6	-0.1	0.07
4.55	98.93	-0.01	2.5	174	0.5	-0.1	0.02
4.07	99.04	0.03	1.5	245	1.5	-0.1	0.03
2.67	98.84	0.04	5.2	76	0.3	-0.1	0.13
3.23	98.59	0.04	8.8	97	0.6	-0.1	0.15
3.89	98.70	0.02	-0.5	108	-0.1	-0.1	-0.1
4.08	98.64	-0.01	3.3	213	0.3	-0.1	0.21
5.36	98.91	-0.01	2.2	23	0.3	0.2	0.03
4.18	98.70	0.02	-0.5	57	-0.1	-0.1	-0.1
8.04	98.72	-0.01	1.5	22	0.2	-0.1	0.25
10.47	98.63	0.05	2.9	24	-0.1	-0.1	0.06
4.26	98.71	0.02	2.2	32	0.2	-0.1	0.06
18.33	98.97	0.05	4.2	11	-0.1	-0.1	2.55
18.28	98.74	0.03	0.6	22	-0.1	-0.1	-0.1
10.33	98.67	0.04	1.2	24	0.2	-0.1	-0.1
6.99	98.41	0.04	1.8	44	-0.1	0.1	0.1
12.32	98.74	0.04	3.6	12	0.3	-0.1	-0.1
11.21	99.11	0.02	-0.5	14	0.1	-0.1	-0.1
10.77	98.88	0.02	-0.5	14	-0.1	-0.1	-0.1
8.75	98.90	0.02	-0.5	24	-0.1	-0.1	-0.1
11.36	98.72	0.04	-0.5	23	-0.1	-0.1	-0.1
9.45	98.88	0.03	-0.5	16	-0.1	-0.1	-0.1
8.63	98.66	0.05	6.7	15	-0.1	-0.1	-0.1
6.67	98.57	-0.01	3	17	0.2	-0.1	0.06
9.72	98.82	-0.01	16	14	-0.1	-0.1	0.01
9.21	98.51	-0.01	6.2	18	0.1	-0.1	0.04
10.34	99.08	-0.01	14.9	15	0.3	-0.1	0.27
6.30	98.68	-0.01	3.2	13	0.2	-0.1	-0.01
9.91	99.03	-0.01	11	35	0.3	-0.1	0.19
9.14	98.96	-0.01	3.2	16	0.2	-0.1	0.07
8.59	98.61	-0.01	1.8	15	0.2	-0.1	0.02
9.00	98.89	-0.01	2.8	63	-0.1	-0.1	-0.01
9.26	98.68	-0.01	1.6	25	-0.1	-0.1	0.01
8.02	98.78	-0.01	1.5	31	-0.1	-0.1	0.04
9.46	98.86	-0.01	2.5	14	-0.1	-0.1	-0.01
6.78	98.28	-0.01	1.7	16	-0.1	-0.1	0.08
8.94	98.72	-0.01	3.2	16	0.1	-0.1	-0.01
8.12	98.67	-0.01	1.6	21	-0.1	-0.1	0.08
7.45	98.52	-0.01	21.3	20	0.2	-0.1	0.04
8.85	98.48	0.02	4.4	20	-0.1	-0.1	0.02

Ce	Cr	Cs	Cu	Dy	Er	Eu	F
ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm
0.1	2	0.01	1	0.01	0.01	1	50
7.47	223	0.16	55	3.09	1.92	811	201
15.78	38	0.14	107	4.29	2.65	1114	494
58.24	1818	0.09	112	9.02	5.25	2308	413
17.38	60	4.25	35	7.03	4.43	1568	618
14.34	1488	0.39	91	7.08	4.43	1780	303
10.35	762	0.14	115	3.41	2.02	839	214
12.63	256	0.1	147	4.49	2.4	1042	282
5.63	2471	0.33	44	2.23	1.36	531	174
9.59	2068	12.54	78	2.94	1.77	738	245
3.08	2363	0.27	78	3.28	2.06	736	365
4.53	2789	0.27	43	2.48	1.58	482	186
1.96	3154	0.04	21	1.06	0.71	166	-50
0.99	2723	0.16	24	1.18	0.79	130	-50
4.88	2371	0.19	66	2.27	1.38	458	142
7.91	1020	1.27	98	2.7	1.75	596	683
6.57	2520	0.01	44	2.25	1.29	493	198
11.36	2412	1.21	53	1.48	0.81	376	121
7.55	2809	0.51	56	2.89	1.57	631	295
4.24	2717	0.09	19	1.32	0.74	261	-50
9.25	2788	0.03	59	1.35	0.74	359	59
3.88	3624	0.19	101	1.71	0.89	210	273
2.85	3666	0.05	41	1.65	1.02	354	166
5.09	4639	0.06	133	1.54	0.98	191	210
4.51	3397	0.18	60	2.44	1.39	512	236
8.79	2755	0.34	63	0.99	0.58	244	153
3.84	3492	0.14	57	1.86	1.17	451	269
3.5	4312	0.01	30	0.99	0.64	133	-50
2.3	3904	0.02	46	1.84	1.2	328	122
2.45	3026	0.07	49	1.37	0.83	208	84
4.7	2931	0.35	78	2.35	1.38	556	231
6.37	2630	0.32	62	2.29	1.51	508	115
3.6	3530	0.06	114	1.3	0.81	207	281
6.73	3011	0.04	72	2.21	1.38	854	187
4.52	2798	0.04	49	2.07	1.34	243	-50
1.52	3355	0.16	12	0.74	0.47	107	-50
2.06	3497	0.17	104	1.43	0.88	198	115
0.34	4172	0.28	42	0.45	0.31	77	143
1.1	3505	0.03	17	1.42	0.95	259	-50
1.75	2984	0.06	17	1.07	0.8	179	-50
1.84	3142	0.33	14	1.32	0.67	225	68
5.48	2544	2.13	68	1.84	1.11	438	189
8.89	2751	0.2	56	1.64	0.95	204	110

Ga	Gd	Ge	Hf	Ho	La	Lu	Mo
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
0.2	0.01	0.1	0.1	0.01	0.02	0.01	0.1
13.9	2.72	1.3	1.6	0.68	2.91	0.29	1.3
17.9	4.36	1.3	2.3	0.92	6	0.31	2
13.9	10.88	1.7	1.4	1.98	50.64	0.51	1.1
18.5	6.68	1.8	3.5	1.54	6.6	0.67	0.6
11	6.95	1.7	1.3	1.49	26.39	0.66	-0.1
15.1	3.18	1.7	1.7	0.7	3.97	0.25	1.1
20.9	4.26	1.9	2.1	0.85	4.8	0.31	1.9
8.9	1.89	1.4	0.9	0.5	3.05	0.22	0.7
10.4	2.86	1.6	1.5	0.64	3.63	0.22	0.8
10.5	3.07	2.1	1.8	0.69	1.44	0.23	0.4
8.6	2.13	1.4	1	0.58	2.64	0.22	0.6
6.7	0.88	1.6	0.6	0.26	0.85	0.1	0.8
6.5	0.84	1.4	0.4	0.26	0.32	0.09	0.4
9.9	2.11	1.7	1.2	0.48	2.19	0.18	2.5
11	2.67	1.5	1.4	0.59	2.81	0.21	0.5
9.2	1.97	1.1	1	0.49	2.86	0.19	0.7
8.4	1.53	1.5	0.9	0.31	4.8	0.11	0.8
12.5	2.59	1.5	1.6	0.63	3.05	0.23	1
5.7	1.11	1.4	0.7	0.28	1.89	0.11	0.8
6.7	1.47	1.6	1.2	0.28	4.41	0.11	0.7
9.6	1.44	1.8	1	0.34	1.48	0.11	0.9
7.5	1.46	1.5	0.8	0.35	0.78	0.16	0.9
8	1.42	1.6	0.8	0.33	2.42	0.13	1
8.8	2.09	1.8	1.2	0.49	1.99	0.2	0.7
8.4	1.05	1.4	1.4	0.19	3.85	0.1	1.4
10.7	1.87	1.7	1.1	0.42	1.02	0.13	1.5
5.2	0.92	1.9	0.5	0.23	2.23	0.09	0.6
10.3	1.91	1.8	1.2	0.41	3.45	0.16	3.5
7	1.2	1.9	0.8	0.29	1.05	0.1	1.5
10.2	2.06	1.6	1.1	0.49	1.46	0.15	1.2
9.8	2.11	2.1	1.1	0.52	2.97	0.18	1.6
9	1.18	2.3	1.1	0.27	1.48	0.12	1.2
10.2	2.06	1.7	1.2	0.49	2.48	0.17	0.7
8.3	1.87	1.9	1	0.46	2.07	0.17	1.3
6.6	0.56	1.4	0.6	0.16	0.74	0.07	1
7.9	1.16	1.5	0.7	0.29	0.88	0.09	0.6
6.1	0.39	1.5	0.6	0.1	0.28	0.04	1.5
8.2	1.07	1.6	0.5	0.32	0.4	0.11	0.5
8.1	0.83	1.6	0.7	0.24	0.69	0.09	0.2
8.3	1.18	1.5	0.8	0.26	0.86	0.08	1.6
9.3	1.8	1.8	1.2	0.39	1.96	0.13	1
7.5	1.56	1.5	0.9	0.32	3.72	0.1	0.2

Nb	Nd	Ni	Pb	Pr	Rb	Sb	Sc
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
0.1	0.01	2	0.5	0.01	1	0.1	2
2.1	6.72	110	-0.5	1.09	-1	-0.1	46
4	11.2	88	2.8	2.17	-0.3	0.7	45
2.4	33.76	476	3.8	7.56	3	0.2	53
6.8	15.99	71	-0.5	2.98	63.4	0.2	42
1.8	23.24	531	2	5.1	3.4	-0.1	37
3	7.84	164	2.2	1.44	1.5	0.2	40
4	9.98	100	1.7	1.85	2.2	0.5	39
1.2	4.16	530	0.7	0.74	1.8	-0.1	31
2.4	7.05	403	-0.5	1.32	86.8	1	36
3.8	3.51	596	1	0.57	-0.3	0.3	41
1.2	4.19	820	-0.5	0.77	-1	-0.1	32
0.7	1.44	1204	1.6	0.27	-0.3	0.3	26
0.1	0.99	1305	0.7	0.15	-0.3	0.6	26
1.9	4.28	924	-0.5	0.81	-0.3	-0.1	29
1.9	5.98	221	0.7	1.16	12.6	5.7	35
1.7	4.64	663	0.5	0.83	-1	0.1	26
1.5	7.77	1360	-0.5	1.46	4.3	-0.1	26
2.4	5.87	1077	-0.5	1.05	-1	0.3	36
1.1	3.02	1855	1.4	0.55	-1	1.1	19
2.1	5.94	1276	-0.5	1.12	-1	-0.1	24
1.3	3.38	1804	-0.5	0.56	-1	-0.1	32
1	3.04	1114	-0.5	0.5	-1	-0.1	28
1	4	1445	-0.5	0.74	-1	-0.1	28
1.7	4.88	1506	-0.5	0.81	-1	-0.1	29
2.1	5.01	1253	0.5	1.03	-1	0.4	34
1.9	3.98	1470	-0.5	0.69	-0.3	0.2	32
0.8	2.33	1291	-0.5	0.49	-0.3	0.3	21
2.3	4.66	2356	0.6	0.86	-0.3	0.2	29
1.5	2.23	1358	-0.5	0.39	-0.3	0.3	25
1.9	4.86	1115	-0.5	0.85	-0.3	0.6	34
1.9	4.92	1750	-0.5	0.93	-0.3	1.3	33
1.7	2.91	1709	-0.5	0.53	-0.3	0.1	31
2	5.29	1195	-0.5	1.01	-0.3	-0.1	29
1.6	3.46	1445	-0.5	0.63	-0.3	0.2	26
0.7	1.03	1007	-0.5	0.2	-0.3	0.3	28
0.8	2.22	1391	-0.5	0.4	0.8	0.2	26
0.4	0.45	1434	-0.5	0.08	0.3	0.4	36
0.3	1.27	1289	-0.5	0.19	-0.3	0.2	25
0.6	1.27	1119	-0.5	0.23	-0.3	0.5	32
0.7	1.89	1222	-0.5	0.33	0.9	0.1	28
1.9	4.4	972	-0.5	0.82	2.3	1.6	34
1.4	5.54	1496	-0.5	1.13	-0.3	0.3	23

Sm	Sn	Sr	Ta	Tb	Th	U	V
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
0.01	0.5	1	0.1	0.01	0.1	0.1	5
2.13	1	93.8	0.2	0.49	0.4	0.11	296
3.35	1	72.4	0.2	0.76	0.6	0.2	386
6.56	0.6	134.1	0.1	1.6	1.3	0.49	213
5.17	0.9	99.9	0.4	1.21	0.8	0.39	433
5.26	-0.5	103.5	-0.1	1.22	1.8	0.3	176
2.23	0.7	95.9	0.1	0.58	0.4	0.11	295
2.89	1.3	108	0.2	0.74	0.4	0.1	356
1.29	0.8	80.3	0.1	0.33	0.7	0.21	180
2.08	1.3	42	0.1	0.52	0.4	0.12	256
1.63	1.6	64.4	0.2	0.59	0.7	0.15	218
1.51	0.9	54.6	0.1	0.36	0.8	0.17	168
0.4	1.2	22.5	0.1	0.16	0.2	0.08	123
0.2	-0.5	56.2	-0.1	0.17	-0.1	-0.01	151
1.19	0.6	43.4	-0.1	0.37	0.4	0.14	191
1.33	1.2	64.8	0.1	0.44	0.4	0.17	287
1.55	1	193.4	0.1	0.35	0.4	0.11	207
1.65	1.1	25.7	0.1	0.23	0.4	-0.1	173
2.04	1.1	31.2	0.2	0.46	0.6	0.14	232
0.87	1.2	97.3	0.1	0.19	0.2	-0.1	108
1.44	1	45.3	0.2	0.23	0.4	-0.1	112
1.01	0.8	47.2	0.1	0.26	0.2	-0.1	150
1.05	0.8	33.7	-0.1	0.25	0.6	0.11	124
1.07	0.8	39.4	0.1	0.24	0.7	0.17	132
1.49	0.9	46.2	0.1	0.37	0.4	-0.1	131
0.97	1.2	32.3	0.2	0.16	0.4	-0.1	199
1.35	0.6	31	-0.1	0.34	0.2	0.09	190
0.53	-0.5	29.9	-0.1	0.16	0.4	0.07	91
1.12	0.6	40.5	0.1	0.3	0.3	0.1	141
0.87	1	43.5	-0.1	0.21	0.2	0.05	114
1.56	0.7	34.4	0.1	0.41	0.3	0.06	183
1.46	1.1	38.1	-0.1	0.39	0.3	0.11	196
0.83	-0.5	56.9	-0.1	0.23	0.3	0.07	108
1.53	0.6	37.2	-0.1	0.4	0.4	0.09	166
0.98	-0.5	36	-0.1	0.35	0.3	0.08	135
0.26	-0.5	38.9	-0.1	0.11	0.1	0.03	137
0.65	-0.5	47	-0.1	0.22	0.3	0.05	132
0.07	-0.5	50.1	-0.1	0.07	-0.1	0.03	121
0.7	-0.5	26	-0.1	0.23	-0.1	0.01	164
0.46	-0.5	24	-0.1	0.16	0.2	0.1	156
0.72	0.6	47.9	-0.1	0.25	0.2	0.05	139
1.41	-0.5	75.1	0.1	0.33	0.3	0.07	190
1.03	-0.5	49.2	-0.1	0.27	0.2	0.08	162

Y	Yb	Zn	Zr	VolMgO	Ti/Zr	(La/Sm)CN	Al2O3/TiO2
ppm	ppm	ppm	ppm				
0.5	0.01	1	1				
18.1	1.74	77	45	7.19	113	0.88	17.59
22.4	2.24	83.2	86	9.07	89	1.16	11.96
67.5	3.5	112	46	10.56	94	4.98	19.91
40.6	4.47	100.8	139	6.12	86	0.82	6.64
43.2	4.54	91.7	44	11.30	76	3.24	21.95
19.5	1.89	71.3	60	9.99	101	1.15	11.46
25.4	2.19	99.4	77	7.84	109	1.07	9.77
13.5	1.29	70	28	17.60	116	1.53	18.32
16.5	1.48	67.3	52	14.27	88	1.13	12.39
21	1.83	90.9	65	14.11	91	0.57	8.06
18.6	1.4	70	30	18.39	108	1.13	17.63
6.1	0.73	67.1	11	27.71	173	1.37	20.95
7.2	0.73	54.8	8	27.73	236	1.03	21.93
13.8	1.35	74.1	40	18.93	90	1.19	13.24
13.1	1.51	72	45	12.10	107	1.36	12.53
12.6	1.17	67	29	22.19	141	1.19	11.90
8.5	0.72	60	25	24.90	159	1.88	10.84
16.3	1.53	90	52	20.04	93	0.97	12.07
7.3	0.71	48	19	30.67	125	1.40	11.55
7.7	0.69	60	39	22.93	110	1.98	7.11
9.5	0.74	77	33	20.23	118	0.95	12.33
9.9	1	66	22	20.91	127	0.48	17.51
9.2	0.92	76	23	22.02	133	1.46	17.75
13.7	1.28	77	34	20.49	117	0.86	11.09
5.3	0.67	71	39	24.77	114	2.56	9.84
10.8	1.05	78.9	35	20.52	110	0.49	12.69
6.8	0.64	64.3	11	26.13	152	2.72	19.52
14.1	0.98	82.9	42	20.94	106	1.99	11.13
8.1	0.72	60.4	29	22.53	99	0.78	12.67
12.8	1.19	79.9	40	19.91	100	0.60	12.10
16.7	1.24	76.9	40	21.38	93	1.31	12.83
7.1	0.79	70.7	32	20.27	114	1.15	11.49
12.8	1.27	78.2	41	21.14	89	1.05	13.25
12.9	1.19	62.6	31	23.65	96	1.36	12.99
4	0.54	63.1	14	24.80	136	1.84	25.72
7.1	0.66	67.3	17	21.98	119	0.87	26.66
2.8	0.32	63.9	12	21.37	225	2.58	14.57
8.5	0.78	68.4	11	24.58	192	0.37	23.99
6.6	0.71	70.8	27	24.85	85	0.97	21.21
6.1	0.55	62.7	22	23.23	117	0.77	18.86
10.3	1.07	72.8	41	19.98	96	0.90	12.36
9.2	0.8	66.1	27	25.68	120	2.33	11.43

(Al ₂ O ₃ /TiO ₂)MN	Zr/Nb	(La/Yb)CN	(Gd/Yb)CN	(Gd/Yb)MN	La(CN)
0.7963	21.43	1.20	1.2932	1.2672	12.28
0.5415	21.50	1.92	1.6102	1.5779	25.32
0.9015	19.17	10.38	2.5716	2.5200	213.67
0.3007	20.44	1.06	1.2362	1.2115	27.85
0.9939	24.44	4.17	1.2664	1.2410	111.35
0.5189	20.00	1.51	1.3919	1.3640	16.75
0.4422	19.25	1.57	1.6092	1.5769	20.25
0.8296	23.33	1.70	1.2120	1.1877	12.87
0.5609	21.67	1.76	1.5986	1.5665	15.32
0.3647	17.11	0.56	1.3878	1.3600	6.08
0.7981	25.00	1.35	1.2586	1.2334	11.14
0.9485	15.71	0.84	0.9972	0.9772	3.59
0.9929	80.00	0.31	0.9519	0.9328	1.35
0.5995	21.05	1.16	1.2930	1.2670	9.24
0.5672	23.68	1.33	1.4628	1.4334	11.86
0.5386	17.06	1.75	1.3929	1.3650	12.07
0.4909	16.67	4.78	1.7579	1.7227	20.25
0.5465	21.67	1.43	1.4004	1.3723	12.87
0.5230	17.27	1.91	1.2933	1.2674	7.97
0.3220	18.57	4.58	1.7624	1.7271	18.61
0.5581	25.38	1.43	1.6098	1.5775	6.24
0.7928	22.00	0.56	1.2078	1.1836	3.29
0.8034	23.00	1.89	1.2768	1.2512	10.21
0.5019	20.00	1.12	1.3507	1.3237	8.40
0.4453	18.57	4.12	1.2964	1.2704	16.24
0.5744	18.42	0.70	1.4733	1.4438	4.30
0.8839	13.75	2.50	1.1892	1.1653	9.41
0.5038	18.26	2.53	1.6123	1.5800	14.56
0.5736	19.33	1.05	1.3788	1.3511	4.43
0.5476	21.05	0.88	1.4320	1.4033	6.16
0.5808	21.05	1.72	1.4077	1.3794	12.53
0.5200	18.82	1.34	1.2356	1.2109	6.24
0.5999	20.50	1.40	1.3418	1.3149	10.46
0.5879	19.38	1.25	1.3000	1.2739	8.73
1.1642	20.00	0.98	0.8579	0.8407	3.12
1.2068	21.25	0.96	1.4540	1.4248	3.71
0.6597	30.00	0.63	1.0082	0.9880	1.18
1.0859	36.67	0.37	1.1348	1.1121	1.69
0.9602	45.00	0.70	0.9671	0.9477	2.91
0.8536	31.43	1.12	1.7748	1.7392	3.63
0.5596	21.58	1.31	1.3916	1.3637	8.27
0.5174	19.29	3.34	1.6131	1.5808	15.70
	23.09				

Eu/Eu*	Y/Ho	Nb/Th
1.03	27	5
0.89	24	7
0.84	34	2
0.82	26	9
0.90	29	1
0.96	28	8
0.91	30	10
1.04	27	2
0.93	26	6
1.01	30	5
0.82	32	2
0.86	23	4
0.97	28	-1
0.88	29	5
0.97	22	5
0.86	26	4
0.72	27	4
0.84	26	4
0.81	26	6
0.75	28	5
0.53	28	7
0.87	28	2
0.47	28	1
0.89	28	4
0.74	28	5
0.87	26	10
0.58	30	2
0.69	34	8
0.62	28	8
0.95	26	6
0.88	32	6
0.64	26	6
1.47	26	5
0.55	28	5
0.86	25	7
0.70	24	3
1.42	28	-4
0.91	27	-3
0.89	28	3
0.75	23	4
0.84	26	6
0.49	29	7