

	Al2O3	SiO2	TiO2	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	Ba	Cr	S	Sc	Sr	Zn	Zr	Be	V
	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Al2O3 (wt %)	1																		
SiO2 (wt %)	0.84	1																	
TiO2 (wt %)	0.95	0.93	1																
Fe2O3 (wt %)	0.18	0.08	0.16	1															
MnO (wt %)	-0.43	-0.4	-0.4	0.326	1														
MgO (wt %)	-0.55	-0.6	-0.6	0.329	0.71	1													
CaO (wt %)	-0.87	-1	-0.9	-0.25	0.34	0.51	1												
Na2O (wt %)	0.67	0.93	0.81	0.06	-0.3	-0.6	-0.9	1											
K2O (wt %)	0.94	0.78	0.9	0.231	-0.4	-0.5	-0.8	0.57	1										
P2O5 (wt %)	-0.28	-0.4	-0.3	-0.32	-0.1	-0.1	0.4	-0.4	-0.2	1									
Ba (ppm)	-0.2	-0.3	-0.2	0.142	0.39	0.47	0.2	-0.2	-0.2	0.14	1								
Cr (ppm)	0.67	0.43	0.61	0.003	-0.4	-0.4	-0.5	0.19	0.71	0.1	-0.21	1							
S (ppm)	0.08	-0.1	0.04	0.711	0.22	0.26	-0.1	-0.1	0.13	-0.2	-0.09	-0.1	1						
Sc (ppm)	0.93	0.77	0.89	0.2	-0.4	-0.6	-0.8	0.6	0.92	-0.1	-0.18	0.67	0.15	1					
Sr (ppm)	-0.64	-0.8	-0.7	-0.36	0.07	0.23	0.8	-0.7	-0.6	0.81	0.3	-0.2	-0.2	-0.5	1				
Zn (ppm)	-0.06	-0.2	-0.1	-0.2	-0.2	-0.1	0.2	-0.4	-0.1	0.62	-0.04	0.53	-0.2	-0	0.45	1			
Zr (ppm)	0.39	0.71	0.59	-0.1	-0.2	-0.5	-0.6	0.75	0.27	-0.2	-0.29	0.15	-0.1	0.33	-0.5	-0.13	1		
Be (ppm)	0.85	0.54	0.75	0.187	-0.4	-0.4	-0.7	0.32	0.84	-0.1	-0.17	0.81	0.16	0.79	-0.4	0.22	0.2	1	
V (ppm)	0.36	0.09	0.24	-0.08	-0.3	-0.2	-0.2	-0.1	0.28	0.25	-0.14	0.73	-0.2	0.32	0.05	0.75	-0	0.5	1
Co (ppm)	0.11	0.4	0.23	-0.13	-0.1	-0.1	-0.4	0.56	-0	-0.3	-0.03	-0.2	-0.2	0.02	-0.4	-0.34	0.49	-0.1	-0.2
Ni (ppm)	0.15	-0.1	0.03	-0.29	-0.4	-0.2	0.1	-0.3	0.13	0.68	-0.08	0.66	-0.2	0.2	0.43	0.89	-0.1	0.38	0.8
Cu (ppm)	0.45	0.26	0.38	-0.16	-0.4	-0.4	-0.3	0.04	0.47	0.4	-0.07	0.76	-0.2	0.48	0.03	0.64	0.18	0.6	0.66
Ga (ppm)	0.96	0.75	0.92	0.221	-0.3	-0.5	-0.8	0.58	0.96	-0.2	-0.14	0.75	0.13	0.93	-0.6	0.03	0.32	0.91	0.37
Rb (ppm)	0.95	0.73	0.9	0.196	-0.3	-0.5	-0.8	0.53	0.95	-0.2	-0.17	0.8	0.1	0.92	-0.6	0.07	0.29	0.93	0.44
Y (ppm)	-0.07	-0.2	-0.1	-0.3	-0.3	-0.2	0.2	-0.2	-0	0.95	0.06	0.3	-0.2	0.1	0.64	0.64	-0.1	0.05	0.33
Nb (ppm)	0.92	0.94	0.98	0.148	-0.4	-0.6	-1	0.85	0.85	-0.4	-0.24	0.54	0.07	0.85	-0.7	-0.17	0.65	0.73	0.17
Mo (ppm)	0.35	0.08	0.24	0.042	-0.3	-0.2	-0.2	-0.1	0.29	0.19	-0.11	0.54	0.14	0.28	0.05	0.53	0.01	0.56	0.61
Sn (ppm)	0.62	0.67	0.65	-0.23	-0.4	-0.5	-0.6	0.71	0.46	-0.3	-0.12	0.22	-0.3	0.51	-0.4	-0.23	0.4	0.29	0.1

Rb (ppm)	-0	0.26	0.54	0.99	1														
Y (ppm)	-0.2	0.74	0.54	-0	-0	1													
Nb (ppm)	0.37	-0	0.34	0.89	0.85	-0.1	1												
Mo (ppm)	-0.1	0.61	0.47	0.38	0.41	0.28	0.23	1											
Sn (ppm)	0.45	-0.1	0.06	0.49	0.46	-0.2	0.65	0.08	1										
Cs (ppm)	-0.3	0.43	0.61	0.87	0.92	0.1	0.6	0.53	0.18	1									
La (ppm)	-0.2	0.61	0.6	0.25	0.23	0.93	0.13	0.27	-0	0.26	1								
Ce (ppm)	0.07	0.2	0.48	0.55	0.53	0.48	0.56	0.18	0.28	0.42	0.73	1							
Pr (ppm)	-0.1	0.54	0.59	0.32	0.32	0.83	0.24	0.26	0.05	0.32	0.94	0.88	1						
Nd (ppm)	-0.1	0.55	0.56	0.27	0.27	0.85	0.19	0.26	0.01	0.28	0.93	0.85	1	1					
Sm (ppm)	-0.1	0.53	0.54	0.26	0.27	0.8	0.2	0.27	0.02	0.27	0.87	0.85	0.98	0.99	1				
Eu (ppm)	-0.2	0.61	0.55	0.17	0.17	0.9	0.08	0.27	-0.1	0.21	0.92	0.75	0.96	0.98	0.97	1			
Gd (ppm)	-0.1	0.61	0.58	0.2	0.21	0.89	0.12	0.29	-0	0.24	0.93	0.78	0.98	0.99	0.98	0.99	1		
Tb (ppm)	-0.1	0.63	0.6	0.24	0.24	0.89	0.15	0.29	-0	0.27	0.94	0.79	0.98	0.99	0.98	0.99	1	1	
Dy (ppm)	-0.1	0.65	0.6	0.23	0.23	0.91	0.14	0.31	-0	0.26	0.94	0.76	0.97	0.98	0.97	0.98	0.99	1	1
Ho (ppm)	-0.1	0.67	0.6	0.2	0.21	0.94	0.12	0.31	-0	0.24	0.96	0.73	0.96	0.97	0.94	0.97	0.98	0.99	0.99
Er (ppm)	-0.1	0.7	0.61	0.23	0.22	0.94	0.15	0.31	-0	0.25	0.96	0.7	0.94	0.94	0.91	0.96	0.96	0.97	0.98
Tm (ppm)	-0.1	0.7	0.65	0.3	0.29	0.91	0.24	0.33	0.05	0.29	0.94	0.7	0.92	0.92	0.89	0.92	0.94	0.95	0.96
Yb (ppm)	-0	0.69	0.66	0.4	0.39	0.83	0.37	0.39	0.11	0.37	0.89	0.72	0.88	0.88	0.86	0.88	0.89	0.91	0.93
Lu (ppm)	-0	0.68	0.67	0.43	0.42	0.79	0.41	0.41	0.14	0.39	0.84	0.69	0.85	0.85	0.82	0.84	0.86	0.88	0.89
Hf (ppm)	0.52	-0.1	0.15	0.32	0.29	-0.1	0.66	-0	0.44	0.04	0.07	0.4	0.17	0.15	0.18	0.08	0.12	0.13	0.13
Ta (ppm)	0.85	-0.3	-0	0.23	0.18	-0.2	0.62	-0.1	0.56	-0.1	-0.1	0.27	0.02	-0.01	0.01	-0.1	-0	-0	-0
W (ppm)	0.88	-0.3	-0.1	0.1	0.04	-0.2	0.48	-0.1	0.5	-0.2	-0.1	0.2	-0.03	-0.04	-0	-0.1	-0.1	-0.1	-0.1
Tl (ppm)	-0.3	0.89	0.63	0.25	0.3	0.46	0.03	0.72	-0.1	0.47	0.33	-0	0.25	0.26	0.25	0.32	0.33	0.35	0.37
Pb (ppm)	0.58	-0.1	-0	0.14	0.11	-0.2	0.43	-0	0.75	-0.2	-0.1	0.14	-0.04	-0.06	-0	-0.1	-0.1	-0.1	-0.1
Th (ppm)	0.08	0.11	0.48	0.92	0.92	-0	0.92	0.26	0.51	0.76	0.24	0.63	0.36	0.31	0.31	0.19	0.23	0.27	0.25
U (ppm)	-0.3	0.76	0.47	-0.1	-0.08	0.91	-0.3	0.44	-0.3	0.08	0.78	0.22	0.61	0.63	0.58	0.71	0.69	0.7	0.73

Ho Er Tm Yb Lu Hf Ta W Tl Pb Th U

	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Ho (ppm)	1											
Er (ppm)	0.99	1										
Tm (ppm)	0.98	0.99	1									
Yb (ppm)	0.93	0.95	0.98	1								
Lu (ppm)	0.9	0.93	0.96	0.98	1							
Hf (ppm)	0.11	0.15	0.23	0.33	0.39	1						
Ta (ppm)	-0	-0	0.07	0.13	0.16	0.76	1					
W (ppm)	-0.1	-0.1	0.02	0.06	0.08	0.69	0.98	1				
Tl (ppm)	0.39	0.42	0.44	0.47	0.49	-0.1	-0.2	-0.24	1			
Pb (ppm)	-0.1	-0	0.02	0.08	0.09	0.56	0.65	0.63	-0.07	1		
Th (ppm)	0.22	0.24	0.31	0.42	0.46	0.55	0.35	0.2	0.1	0.26	1	
U (ppm)	0.77	0.79	0.75	0.69	0.65	-0.2	-0.3	-0.3	0.57	-0.3	-0.17	1