

	Al2O3	SiO2	TiO2	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	Ba	Cr	Sc
	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(ppm)	(ppm)	(ppm)
Al2O3 (%)	1												
SiO2 (%)	-0.18	1											
TiO2 (%)	0.92	-0.07	1										
Fe2O3 (%)	0.591	-0.25	0.508	1									
MnO (%)	-0.41	-0.25	-0.44	-0.32	1								
MgO (%)	-0.27	-0.77	-0.31	-0.29	0.48	1							
CaO (%)	-0.53	-0.64	-0.6	-0.24	0.41	0.83	1						
Na2O (%)	0.531	-0.06	0.601	0.208	-0.7	-0.13	-0.32	1					
K2O (%)	0.973	-0.11	0.908	0.531	-0.4	-0.34	-0.6	0.45	1				
P2O5 (%)	-0.28	-0.2	-0.32	0.428	-0.2	0.1	0.39	-0.06	-0.4	1			
Ba (ppm)	0.866	0.12	0.835	0.418	-0.4	-0.45	-0.69	0.49	0.87	-0.41	1		
Cr (ppm)	0.451	-0.2	0.423	0.856	-0.3	-0.22	-0.12	0.12	0.36	0.6	0.28	1	
Sc (ppm)	0.976	-0.22	0.893	0.633	-0.4	-0.26	-0.48	0.48	0.95	-0.23	0.83	0.5	1
Sr (ppm)	0.753	-0.21	0.674	0.516	-0.1	-0.13	-0.3	0.18	0.71	-0.18	0.67	0.46	0.75
Zr (ppm)	-0	0.51	0.289	-0.13	-0.3	-0.37	-0.46	0.22	0.03	-0.2	0.14	0.01	-0
Be (ppm)	0.922	-0.22	0.803	0.623	-0.3	-0.23	-0.42	0.38	0.86	-0.16	0.76	0.56	0.91
V (ppm)	0.619	-0.26	0.516	0.931	-0.3	-0.29	-0.24	0.13	0.57	0.4	0.43	0.91	0.66
Co (ppm)	0.464	-0.22	0.412	0.92	-0.3	-0.32	-0.23	0.17	0.42	0.48	0.29	0.83	0.51
Ni (ppm)	0.838	-0.33	0.758	0.8	-0.2	-0.21	-0.36	0.26	0.82	-0	0.63	0.66	0.85
Cu (ppm)	0.52	-0.26	0.544	0.622	-0.2	-0.16	-0.26	0.15	0.53	0.05	0.38	0.44	0.52
Zn (ppm)	0.266	-0.16	0.216	0.211	-0.2	-0.03	-0.04	0.11	0.25	-0.07	0.17	0.15	0.27
Ga (ppm)	0.971	-0.23	0.87	0.619	-0.4	-0.25	-0.48	0.46	0.93	-0.23	0.82	0.51	0.95
Rb (ppm)	0.968	-0.17	0.865	0.586	-0.3	-0.3	-0.53	0.38	0.96	-0.3	0.84	0.47	0.95
Y (ppm)	0.221	-0.16	0.328	0.567	-0.5	-0.07	-0	0.4	0.12	0.63	0.05	0.67	0.28
Nb (ppm)	0.901	-0.09	0.985	0.491	-0.5	-0.31	-0.6	0.64	0.89	-0.32	0.82	0.41	0.87
Mo (ppm)	0.097	-0.11	0.097	0.733	-0.3	-0.22	-0.04	0.24	0.04	0.61	0.02	0.56	0.12
Sn (ppm)	0.355	-0.37	0.321	0.288	-0.2	0.18	0.12	0.2	0.3	0.1	0.26	0.33	0.35
Cs (ppm)	0.906	-0.24	0.764	0.619	-0.3	-0.22	-0.41	0.23	0.88	-0.18	0.74	0.56	0.9
La (ppm)	0.801	-0.25	0.787	0.757	-0.5	-0.23	-0.35	0.5	0.71	0.19	0.61	0.75	0.81
Ce (ppm)	0.841	-0.04	0.876	0.617	-0.5	-0.39	-0.58	0.59	0.81	-0.13	0.73	0.5	0.84
Pr (ppm)	0.734	-0.05	0.771	0.696	-0.6	-0.37	-0.47	0.56	0.68	0.11	0.6	0.63	0.76
Nd (ppm)	0.656	0	0.704	0.68	-0.6	-0.39	-0.46	0.55	0.6	0.17	0.53	0.61	0.69
Sm (ppm)	0.54	0.11	0.613	0.592	-0.6	-0.42	-0.46	0.54	0.5	0.16	0.44	0.51	0.59
Eu (ppm)	0.51	0.12	0.547	0.624	-0.6	-0.45	-0.44	0.49	0.47	0.22	0.41	0.53	0.57
Gd (ppm)	0.456	0.11	0.544	0.566	-0.6	-0.38	-0.4	0.54	0.41	0.24	0.36	0.5	0.52
Tb (ppm)	0.447	0.12	0.561	0.531	-0.6	-0.38	-0.41	0.55	0.41	0.2	0.36	0.47	0.5
Dy (ppm)	0.475	0.08	0.61	0.529	-0.6	-0.35	-0.41	0.58	0.44	0.18	0.39	0.48	0.52
Ho (ppm)	0.486	0.03	0.632	0.527	-0.6	-0.3	-0.38	0.6	0.44	0.2	0.38	0.51	0.53
Er (ppm)	0.516	-0	0.68	0.512	-0.6	-0.28	-0.38	0.62	0.47	0.17	0.41	0.52	0.55
Tm (ppm)	0.562	0.01	0.743	0.47	-0.6	-0.29	-0.43	0.64	0.52	0.07	0.48	0.49	0.58
Yb (ppm)	0.57	0.03	0.765	0.428	-0.6	-0.29	-0.46	0.64	0.54	0.01	0.5	0.46	0.58
Lu (ppm)	0.546	0.05	0.756	0.393	-0.6	-0.3	-0.46	0.63	0.52	-0.02	0.49	0.44	0.55
Hf (ppm)	-0	0.49	0.289	-0.14	-0.3	-0.37	-0.46	0.22	0.03	-0.21	0.13	0.01	-0
Ta (ppm)	0.886	-0.08	0.973	0.464	-0.5	-0.3	-0.6	0.7	0.87	-0.32	0.82	0.37	0.85
W (ppm)	0.663	0.06	0.66	0.437	-0.5	-0.43	-0.47	0.21	0.7	-0.16	0.62	0.47	0.66
Tl (ppm)	0.715	-0.21	0.658	0.789	-0.3	-0.25	-0.34	0.29	0.68	0.07	0.55	0.59	0.74
Pb (ppm)	0.385	-0.09	0.408	0.509	-0.4	-0.25	-0.28	0.41	0.37	0.15	0.25	0.39	0.38
Th (ppm)	0.821	-0	0.931	0.483	-0.5	-0.36	-0.61	0.63	0.81	-0.26	0.75	0.42	0.8
U (ppm)	0.185	-0.14	0.232	0.785	-0.4	-0.22	-0.05	0.23	0.09	0.77	0.05	0.84	0.24

	Sr	Zr	Be	V	Co	Ni	Cu	Zn	Ga	Rb	Y	Nb	Mo
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Sr (ppm)	1												
Zr (ppm)	-0.1	1											
Be (ppm)	0.76	-0.06	1										
V (ppm)	0.54	-0.19	0.67	1									
Co (ppm)	0.4	-0.12	0.48	0.92	1								
Ni (ppm)	0.71	-0.14	0.84	0.83	0.76	1							
Cu (ppm)	0.44	-0.05	0.47	0.57	0.7	0.79	1						
Zn (ppm)	0.24	-0.06	0.3	0.22	0.19	0.3	0.26	1					
Ga (ppm)	0.76	-0.05	0.98	0.67	0.5	0.87	0.53	0.32	1				
Rb (ppm)	0.74	-0.02	0.95	0.65	0.47	0.86	0.53	0.27	0.98	1			
Y (ppm)	0.18	0.29	0.2	0.51	0.58	0.34	0.34	0.09	0.2	0.13	1		
Nb (ppm)	0.63	0.31	0.77	0.5	0.42	0.74	0.54	0.23	0.86	0.85	0.36	1	
Mo (ppm)	-0	-0.03	0.09	0.54	0.71	0.34	0.43	0.09	0.1	0.06	0.57	0.12	1
Sn (ppm)	0.29	-0.12	0.36	0.31	0.22	0.36	0.22	0.19	0.37	0.35	0.21	0.31	0.12
Cs (ppm)	0.75	-0.11	0.96	0.71	0.5	0.87	0.5	0.27	0.95	0.97	0.14	0.73	0.05
La (ppm)	0.69	0.14	0.83	0.75	0.67	0.82	0.59	0.28	0.83	0.78	0.68	0.8	0.39
Ce (ppm)	0.66	0.36	0.78	0.57	0.54	0.75	0.56	0.27	0.82	0.8	0.55	0.89	0.28
Pr (ppm)	0.6	0.35	0.7	0.64	0.64	0.71	0.55	0.26	0.72	0.68	0.73	0.79	0.42

Nd (ppm)	0.53	0.38	0.61	0.61	0.63	0.65	0.51	0.23	0.63	0.59	0.78	0.72	0.46
Sm (ppm)	0.4	0.44	0.45	0.5	0.57	0.52	0.43	0.18	0.49	0.45	0.77	0.63	0.46
Eu (ppm)	0.36	0.36	0.43	0.53	0.61	0.52	0.43	0.16	0.46	0.43	0.75	0.56	0.49
Gd (ppm)	0.32	0.45	0.37	0.46	0.55	0.45	0.4	0.15	0.4	0.36	0.82	0.57	0.49
Tb (ppm)	0.3	0.5	0.34	0.43	0.53	0.43	0.39	0.13	0.38	0.34	0.82	0.59	0.46
Dy (ppm)	0.32	0.52	0.35	0.44	0.52	0.45	0.41	0.13	0.41	0.37	0.84	0.64	0.45
Ho (ppm)	0.33	0.52	0.37	0.45	0.52	0.45	0.41	0.13	0.42	0.38	0.86	0.67	0.44
Er (ppm)	0.34	0.55	0.4	0.45	0.5	0.47	0.41	0.14	0.46	0.42	0.85	0.72	0.4
Tm (ppm)	0.36	0.6	0.44	0.43	0.45	0.48	0.4	0.13	0.5	0.48	0.78	0.79	0.33
Yb (ppm)	0.36	0.63	0.45	0.4	0.41	0.46	0.38	0.13	0.51	0.49	0.73	0.81	0.28
Lu (ppm)	0.34	0.67	0.43	0.36	0.37	0.43	0.34	0.13	0.5	0.47	0.7	0.8	0.26
Hf (ppm)	-0.1	1	-0.06	-0.2	-0.11	-0.13	-0	-0.1	-0	-0.02	0.28	0.32	-0
Ta (ppm)	0.59	0.33	0.76	0.46	0.39	0.7	0.49	0.21	0.84	0.83	0.36	0.99	0.13
W (ppm)	0.46	0.19	0.63	0.54	0.39	0.62	0.43	0.21	0.67	0.73	0.22	0.66	0.06
Tl (ppm)	0.61	-0.02	0.69	0.69	0.68	0.83	0.77	0.39	0.72	0.69	0.47	0.64	0.51
Pb (ppm)	0.19	0.14	0.29	0.44	0.57	0.49	0.6	0.36	0.37	0.34	0.55	0.48	0.5
Th (ppm)	0.57	0.48	0.73	0.47	0.41	0.66	0.47	0.19	0.79	0.78	0.46	0.95	0.17
U (ppm)	0.16	0.08	0.22	0.75	0.84	0.44	0.45	0.08	0.21	0.15	0.83	0.25	0.78

	Sn (ppm)	Cs (ppm)	La (ppm)	Ce (ppm)	Pr (ppm)	Nd (ppm)	Sm (ppm)	Eu (ppm)	Gd (ppm)	Tb (ppm)	Dy (ppm)	Ho (ppm)	Er (ppm)	Tm (ppm)
Sn (ppm)	1													
Cs (ppm)	0.37	1												
La (ppm)	0.39	0.77	1											
Ce (ppm)	0.25	0.72	0.91	1										
Pr (ppm)	0.25	0.63	0.93	0.96	1									
Nd (ppm)	0.21	0.54	0.88	0.93	0.99	1								
Sm (ppm)	0.12	0.38	0.75	0.85	0.93	0.97	1							
Eu (ppm)	0.1	0.37	0.7	0.79	0.89	0.94	0.98	1						
Gd (ppm)	0.09	0.29	0.7	0.79	0.9	0.95	0.99	0.98	1					
Tb (ppm)	0.09	0.27	0.68	0.79	0.89	0.94	0.98	0.97	0.99	1				
Dy (ppm)	0.12	0.29	0.72	0.81	0.9	0.94	0.97	0.94	0.98	0.99	1			
Ho (ppm)	0.15	0.3	0.75	0.81	0.9	0.93	0.95	0.9	0.96	0.97	0.99	1		
Er (ppm)	0.19	0.33	0.77	0.83	0.89	0.91	0.91	0.85	0.91	0.94	0.97	0.99	1	
Tm (ppm)	0.2	0.38	0.77	0.84	0.87	0.88	0.86	0.79	0.86	0.88	0.93	0.96	0.98	1
Yb (ppm)	0.2	0.39	0.76	0.84	0.85	0.85	0.82	0.74	0.81	0.85	0.9	0.93	0.97	0.99
Lu (ppm)	0.19	0.37	0.73	0.82	0.83	0.82	0.8	0.71	0.79	0.82	0.88	0.91	0.95	0.99
Hf (ppm)	-0.1	-0.1	0.15	0.36	0.35	0.37	0.43	0.34	0.43	0.48	0.5	0.51	0.54	0.6
Ta (ppm)	0.3	0.7	0.78	0.89	0.78	0.72	0.64	0.56	0.58	0.6	0.65	0.68	0.73	0.8
W (ppm)	0.25	0.7	0.6	0.6	0.54	0.48	0.39	0.37	0.32	0.33	0.37	0.38	0.42	0.48
Tl (ppm)	0.31	0.67	0.79	0.75	0.77	0.73	0.66	0.65	0.61	0.58	0.58	0.57	0.55	0.52
Pb (ppm)	0.28	0.25	0.57	0.58	0.63	0.64	0.62	0.6	0.61	0.61	0.62	0.62	0.61	0.57
Th (ppm)	0.26	0.68	0.82	0.94	0.86	0.81	0.74	0.65	0.68	0.7	0.75	0.77	0.82	0.88
U (ppm)	0.18	0.18	0.6	0.41	0.59	0.63	0.6	0.63	0.64	0.62	0.62	0.64	0.62	0.56

	Yb (ppm)	Lu (ppm)	Hf (ppm)	Ta (ppm)	W (ppm)	Tl (ppm)	Pb (ppm)	Th (ppm)	U (ppm)
Yb (ppm)	1								
Lu (ppm)	1	1							
Hf (ppm)	0.64	0.68	1						
Ta (ppm)	0.82	0.81	0.34	1					
W (ppm)	0.5	0.49	0.19	0.63	1				
Tl (ppm)	0.49	0.46	-0	0.62	0.51	1			
Pb (ppm)	0.54	0.51	0.15	0.47	0.36	0.68	1		
Th (ppm)	0.9	0.9	0.48	0.96	0.62	0.61	0.47	1	
U (ppm)	0.5	0.48	0.08	0.24	0.2	0.49	0.5	0.31	1