

Table 4.1 Major element geochemistry of representative drill core samples illustrating characteristic in concentration that are associated with increasing degree of supergene alteration (all data in wt%)

Alteration	Zone	SiO ₂	Fe ₂ O ₃	Mn ₃ O ₄	MgO	CaO	Na ₂ O	K ₂ O
Strongly alt.	M	7.63	8.26	58.8	1.98	1.91	0.53	1.22
Weakly alt.		5.57	5.91	49.1	3.82	13.8	0.03	0.01
Unaltered		5.32	5.71	50.2	3.42	14.3	0.06	0.02
Strongly alt.	C	9.82	6.73	59.8	1.96	1.38	0.38	1.23
Weakly alt.		4.73	4.97	49.8	2.26	16.9	0.03	0.02
Unaltered		4.91	4.88	51.9	2.12	16.2	0.08	0.04
Strongly alt.	N	11.8	9.36	54.7	1.83	1.81	0.45	0.8
Weakly alt.		5.28	8.6	47.1	2.88	14.5	0.03	0.03
Unaltered		5.12	7.61	49.8	2.99	14.7	0.06	0.04

Table 4.2 Trace element geochemistry of representative drill core samples illustrating characteristic

Sample	Zone	P	Ti	V	Cr	Co	Ni	Cu
Strongly alt.	M	238	90	549	32	58	23	9.1
Weakly alt.		207	68	0.05	17	65	28	4.2
Unaltered		177	61	12	13	46	26	2.2
Strongly alt.	C	196	142	600	36	52	33	9.6
Weakly alt.		208	53	0.05	10	44	18	0.7
Unaltered		166	59	13	7.6	45	19	0.2
Strongly alt.	N	258	72	979	29	58	33	19
Weakly alt.		217	66	0.05	10	48	23	0.05
Unaltered		196	74	16	8.1	49	17	0.05

Note: Drill core Rex 85 was selected to represent unaltered braunite lutite, Rex 70 for weakly supergene alt. It is important to note that data for Mn₃O₄ and Fe₂O₃ supplied by MINTEK are well comparable with element data were < 1ppm, 0.05 ppm were used.

Analytical techniques used:

ICP-OES: SiO₂, Fe₂O₃, MgO, CaO, MnO

AAS: K₂O, Na₂O

Leco: S

Wet chem: P

ICP-MS: Ti, V, Cr, Co, Ni, Cu, Zn, Rb, Sr, Y, Ba, Pb, Li, B

changes

Mn/Fe
7.11
8.31
8.79
8.88
10.02
10.64
5.84
5.48
6.54

variations in with increasing degree of supergene alteration (all data in ppm).

Zn	Rb	Sr	Y	Li	Ba	B	Pb
269	7.3	2900	7	5,8	8400	39	44
0.05	0.6	97	6	3.7	180	618	0.05
13	1.5	305	6	4.0	375	650	0.05
243	5.6	2600	6	3.9	7400	49	27
30	1.3	482	5	3.3	339	561	0.05
13	2.2	427	5	7.9	368	500	0.05
81	6.2	3500	6	4.4	974	13	82
0.05	2.4	377	5	3.9	360	580	0.05
15	2.5	384	5	8.1	229	450	1.00

tered and Rex 2 for strongly supergene altered ore

with the data obtained from the SAMANCOR Laboratory at Hotazel. Where trace