

### APPENDIX 3

#### Representative EMP composition of Congolite and temperatures of phase transitions

Crystal C-5																
Analysis #	4	8	10	12	17	18	22	32	33	36	41	42	44	45	49	51
MgO	0.47	13.46	5.45	1.96	10.75	1.68	1.84	1.01	1.15	12.21	0.98	10.94	13.84	11.53	4.82	5.43
FeO	38.85	25.53	35.70	38.96	29.01	40.45	39.73	40.04	39.20	26.50	41.88	28.49	25.44	27.90	36.03	35.57
MnO	2.78	1.23	1.53	1.96	1.40	1.25	1.34	1.74	2.37	1.31	1.20	1.49	1.30	0.79	1.95	1.35
Cl	7.08	8.00	7.32	7.08	7.43	7.01	7.08	6.85	6.91	7.85	7.21	7.74	7.85	7.58	7.38	7.56
B <sub>2</sub> O <sub>3</sub>	48.05	57.40	53.09	50.22	56.06	50.56	50.16	49.29	49.35	56.07	50.70	55.98	58.15	55.69	52.68	52.71
O = Cl <sub>2</sub>	-1.60	-1.80	-1.65	-1.60	-1.68	-1.58	-1.60	-1.55	-1.56	-1.77	-1.63	-1.75	-1.77	-1.71	-1.67	-1.71
TOTAL	95.63	103.81	101.43	98.57	102.98	99.38	98.55	97.38	97.41	102.17	100.34	102.90	104.81	101.79	101.19	100.92
Number of ions on the basis of 3 Me <sup>2+</sup> and 14 (O,Cl) pfu																
Mg <sup>2+</sup> apfu	0.06	1.42	0.62	0.24	1.16	0.20	0.22	0.12	0.14	1.32	0.12	1.18	1.44	1.25	0.55	0.62
Fe <sup>2+</sup>	2.74	1.51	2.28	2.63	1.75	2.71	2.69	2.75	2.69	1.60	2.80	1.73	1.48	1.70	2.32	2.29
Mn <sup>2+</sup>	0.20	0.07	0.10	0.13	0.09	0.09	0.09	0.12	0.17	0.08	0.08	0.09	0.08	0.05	0.13	0.09
B <sup>3+</sup>	7.00	7.00	7.00	7.00	0.91	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Cl <sup>-</sup>	1.01	0.96	0.95	0.97	7.00	0.95	0.97	0.96	0.96	0.96	0.98	0.95	0.93	0.94	0.96	0.99
Temperatures of transition (R3c)?(Pc)	210°C	50°C	180°C	210°C	210°C	250°C	230°C	240°C	230°C	170°C	255°C	160°C	140°C	100°C	200°C	190°C
Temperatures of transition (Pca2 <sub>1</sub> )?(F43c)	310°C	300°C	315°C	315°C	327°C	325°C	332°C	339°C	337°C	310°C	339°C	315°C	300°C	310°C	324°C	310°C