

Appendix B Electron-microprobe analyses (wt% oxides) of selected cordierite samples

	Manitouwadge*	WYO-2*	Geco Mine*	CL-177-1*	NE86A-248*	S. India 1*	88593**	G-155a**	TUB-1**	26230**	C004**
SiO ₂	48.00	49.68	49.02	48.40	47.99	47.80	48.49	49.62	45.79	48.36	49.68
Al ₂ O ₃	31.91	33.35	33.10	33.10	32.55	32.42	31.2	33.30	31.93	30.94	33.13
FeO	5.60	2.53	4.60	5.69	7.97	7.32	6.79	2.62	16.22	6.24	2.29
MgO	10.31	12.19	10.53	10.38	8.54	9.20	8.59	12.40	2.18	8.72	12.09
MnO	0.05	0.05	0.22	0.06	0.05	0.05	0.38	0.04	0.70	0.43	0.05
ZnO	n.a.	tr.	0.07	n.a.	n.a.	n.a.	0.02	tr.	tr.	n.a.	tr.
CaO	0.02	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.04	b.d.l.	0.03
K ₂ O	0.02	b.d.l.	b.d.l.	0.02	0.03	0.08	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.
Na ₂ O	0.37	0.30	0.28	0.08	0.11	0.08	1.36	0.43	0.55	1.40	0.51
H ₂ O	1.73 *	1.21	1.29	0.80	0.56	0.56	2.25	1.46	1.67	2.34	1.47
CO ₂	0.82	0.51	1.25	1.11	1.37	0.88	n.a.	0.20	0.14	n.a.	0.66
Total	96.21	99.82	100.40	99.64	99.17	98.39	100.06	100.08	99.32	98.44	100.03
Si	5.002	4.997	4.994	4.962	4.991	4.976	5	4.991	4.958	5.080	5.004
Al	3.919	3.953	3.974	3.996	3.990	3.977	3.791	3.932	4.075	3.831	3.933
Fe	0.488	0.213	0.392	0.487	0.693	0.637	0.585	0.219	1.469	0.548	0.193
Mg	1.601	1.827	1.599	1.585	1.324	1.428	1.32	1.851	0.351	1.366	1.816
Mn	0.005	0.004	0.019	0.005	0.004	0.004	0.034	0.003	0.064	0.038	0.004
Zn	n.a.	tr.	0.005	n.a.	n.a.	n.a.	0.001	tr.	tr.	n.a.	tr.
Na	0.041	0.058	0.056	0.016	0.021	0.016	0.27	0.083	0.115	0.286	0.099
K	0.003	b.d.l.	b.d.l.	0.002	0.004	0.010	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.
Ca	0.002	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.004	b.d.l.	0.003

* Data from Vry et al. (1990) - Chemical formulas normalized to 18 oxygens.

** Data from Bertoldi et al. (2004) - If both SIMS and ICP-MS data are available, the latter had been used for the calculation of the chemical formula. The chemical formulae of cordierites were calculated on the basis of 36 positive charges.

Appendix B (continued)

	C006**	129875**	7114**	118171**	42/1A**	TA-5**	VS-1**	106886**	H06**	CTSiM**
SiO ₂	49.62	49.76	48.67	49.10	49.65	49.28	48.75	49.47	47.71	49.67
Al ₂ O ₃	33.32	33.60	32.80	33.01	33.17	33.13	32.94	33.01	32.15	33.31
FeO	2.63	1.06	6.58	3.73	2.34	4.26	6.41	1.27	12.20	2.57
MgO	11.99	12.99	9.44	11.13	12.54	10.97	9.44	12.86	5.47	12.15
MnO	tr.	tr.	0.04	0.34	0.03	0.09	0.07	tr.	0.67	0.02
ZnO	tr.	tr.	n.a.	n.a.	tr.	0.10	0.02	tr.	0.01	tr.
CaO	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.
K ₂ O	b.d.l.	0.04	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.14	0.02
Na ₂ O	0.18	0.15	0.09	0.38	0.33	0.25	0.11	0.32	0.20	0.02
H ₂ O	1.12	0.38	0.26	n.a.	1.21	2.06	0.75	n.a.	0.37	1.15
CO ₂	1.02	1.74	1.23	n.a.	0.59	0.20	1.32	n.a.	0.28	0.90
Total	99.89	99.73	99.14	97.73	99.85	100.30	99.82	96.94	99.35	100.01
Si	5.006	4.993	5.004	4.993	4.990	4.997	5.003	5.007	4.998	5.002
Al	3.962	3.974	9.978	3.965	3.935	3.958	3.984	3.937	3.954	3.954
Fe	0.222	0.089	0.565	0.317	0.197	0.361	0.550	0.107	1.069	0.216
Mg	1.803	1.943	1.447	1.688	1.866	1.658	1.445	1.940	0.854	1.825
Mn	tr.	tr.	0.003	0.029	0.003	0.008	0.006	tr.	0.059	0.001
Zn	tr.	tr.	n.a.	n.a.	tr.	0.008	0.001	tr.	0.001	tr.
Na	0.034	0.029	0.019	0.076	0.064	0.050	0.023	0.064	0.041	0.040
K	b.d.l.	0.050	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.019	0.003
Ca	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.

b.d.l. = below detection limit

tr. = trace amounts

n.a. = not analyzed

Italic numbers = values obtained by ICP-MS

* = Uneven IR spectral baseline in H₂O stretching region, IR H₂O determinations uncertain