

APPENDIX 9

EPMA analyses of biotite from the metamorphic rocks and calculated cation numbers

Sample no.	Garnet-bearing migmatites (N31)						Fibrolite-bearing migmatites (A10)				Mesh (N31)		Spinel–cordierite-intergrowth-bearing migmatites (A8)			Biotite–spinel-intergrowth-bearing migmatites (N501)				Garnet-bearing hornfels (A5)			
SiO ₂	34.33	34.59	34.99	34.53	34.60	34.40	35.46	34.66	34.44	34.22	34.64	34.74	34.60	35.31	35.39	34.83	34.56	34.22	34.39	35.66	35.17	35.32	35.30
TiO ₂	3.96	3.93	3.67	3.56	3.57	3.96	4.19	4.17	3.27	3.28	2.74	2.96	1.42	1.53	1.52	3.44	3.23	3.14	3.07	3.53	3.62	3.71	3.37
Al ₂ O ₃	18.50	19.60	18.53	18.47	18.77	17.27	17.91	17.67	17.60	17.78	18.95	18.96	19.31	19.69	19.04	17.96	17.89	18.55	18.72	17.86	17.31	17.73	17.19
FeO	21.90	22.18	22.21	22.38	21.63	20.19	20.93	21.43	21.40	21.53	21.37	21.71	20.15	20.60	20.90	21.05	22.78	19.86	22.14	21.29	21.60	21.91	21.25
MnO	0.00	0.00	0.11	0.14	0.00	0.16	0.08	0.46	1.19	1.11	0.00	0.00	1.73	2.72	0.30	0.81	0.18	0.76	0.98	0.02	0.00	0.00	0.00
MgO	6.30	6.37	6.14	6.11	6.26	5.14	5.98	5.62	6.15	6.20	6.79	6.46	9.01	8.88	8.70	21.05	22.78	19.86	22.14	7.40	7.61	7.81	7.87
CaO	0.04	0.03	0.03	0.05	0.01	0.00	0.01	0.01	0.00	0.00	0.02	0.05	0.02	0.05	0.08	0.81	0.18	0.76	0.98	0.00	0.00	0.00	0.02
Na ₂ O	0.09	0.11	0.08	0.10	0.11	0.08	0.13	0.13	0.15	0.14	0.08	0.07	0.26	0.35	0.27	0.10	0.15	0.09	0.11	0.09	0.08	0.08	0.00
K ₂ O	9.99	10.14	10.19	10.04	10.14	9.09	9.41	9.72	9.38	9.34	10.7	9.96	9.31	9.37	9.95	9.68	9.79	10.11	9.96	10.26	10.04	10.32	10.32
Total	94.84	96.11	95.95	95.38	95.09	95.29	94.05	93.87	93.58	93.60	95.29	94.91	95.81	97.50	96.15	94.23	94.66	93.09	95.97	96.11	95.43	96.88	95.32
Number of cations on the basis of 22 oxygens																							
Si	5.35	5.32	5.39	5.37	5.37	5.63	5.52	5.45	5.45	5.41	5.37	5.39	5.31	5.29	5.40	5.45	5.42	5.41	5.32	5.46	5.44	5.39	5.46
Ti	0.43	0.42	0.43	0.42	0.42	0.50	0.48	0.49	0.39	0.39	0.32	0.35	0.16	0.17	0.17	0.40	0.38	0.37	0.36	0.41	0.42	0.43	0.39
Al	3.40	3.46	3.37	3.38	3.43	3.43	3.28	3.28	3.28	3.32	3.47	3.47	3.49	3.48	3.43	3.31	3.31	3.46	3.42	3.22	3.16	3.19	3.14
Fe	2.85	2.85	2.86	2.91	2.81	2.28	2.72	2.82	2.83	2.85	2.77	2.82	2.58	2.58	2.67	2.75	2.99	2.62	2.87	2.73	2.79	2.80	2.75
Mn	0.00	0.00	0.01	0.02	0.00	0.02	0.01	0.06	0.16	0.15	0.00	0.00	0.22	0.35	0.04	0.11	0.02	0.10	0.13	0.00	0.00	0.00	0.00
Mg	1.46	1.46	1.41	1.42	1.45	1.29	1.39	1.32	1.45	1.60	1.57	1.49	2.06	1.98	1.98	0.11	0.02	0.10	0.13	1.69	1.75	1.78	1.82
Ca	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	1.46	1.41	1.49	1.52	0.00	0.00	0.00	0.00
Na	0.03	0.03	0.02	0.03	0.03	0.03	0.04	0.04	0.05	0.04	0.02	0.02	0.08	0.10	0.08	0.01	0.01	0.00	0.00	0.03	0.02	0.02	0.00
K	1.99	1.99	2.00	1.99	2.01	1.95	1.87	1.95	1.89	1.88	2.12	1.97	1.82	1.79	1.94	1.93	1.96	2.04	1.97	2.00	1.98	2.01	2.04
Total	15.52	15.54	15.51	15.54	15.52	15.14	15.31	15.41	15.49	15.50	15.64	15.52	15.73	15.75	15.72	15.47	15.55	15.52	15.61	15.54	15.57	15.61	15.60
Fe/Fe + Mg	0.66	0.66	0.67	0.67	0.66	0.64	0.66	0.68	0.66	0.66	0.64	0.65	0.56	0.57	0.57	0.65	0.68	0.64	0.65	0.62	0.61	0.61	0.61