

Table T8. Whole-rock major and selected trace element analyses of Leg 176 gabbroic samples. (Continued on next five pages.)

Sample:*	MS1-1	MS3-2	MS6-3	MS9-4	MS11-5	MS12-6	MS14-7	MS18-8	MSS19-9	MS20-10	MS22-11	MS23-12	MS24-13	MS25-14	MS26-15	MS27-16	MS28-17	MS41-18
Major element oxides (wt%):																		
SiO ₂	47.21	47.91	47.11	47.67	51.72	49.22	52.54	51.30	50.88	49.32	51.22	50.84	52.49	44.26	52.63	49.76	52.58	51.64
TiO ₂	0.14	0.12	0.14	0.21	0.31	0.39	0.63	0.42	0.46	0.42	1.14	0.57	2.84	6.52	0.45	0.63	0.64	2.84
Al ₂ O ₃	19.58	21.25	21.73	19.92	20.67	12.76	17.11	14.92	16.59	13.35	9.67	13.30	19.34	9.68	25.89	13.84	13.50	14.40
FeOt	4.56	4.39	4.61	4.06	4.03	9.11	6.11	6.61	6.14	9.11	10.06	7.12	6.22	17.89	2.53	8.25	7.80	11.25
MnO	0.08	0.08	0.08	0.08	0.08	0.18	0.14	0.14	0.12	0.18	0.24	0.16	0.12	0.29	0.04	0.17	0.17	0.21
MgO	13.01	10.81	11.69	9.50	6.30	13.19	8.11	9.20	8.52	12.45	11.01	10.49	3.60	8.01	1.67	11.07	9.12	5.73
CaO	11.30	11.64	10.84	14.41	12.11	11.75	11.46	12.47	12.66	11.98	13.17	13.82	9.33	10.78	10.05	12.25	12.35	9.32
Na ₂ O	2.30	2.47	2.53	2.22	3.81	2.44	3.84	3.17	3.39	2.61	2.37	2.66	5.14	2.69	5.03	2.73	3.18	4.17
K ₂ O	0.05	0.02	0.08	0.00	0.03	0.10	0.09	0.06	0.04	0.07	0.06	0.06	0.08	0.04	0.08	0.04	0.05	0.15
P ₂ O ₅	0.02	0.01	0.02	0.03	0.02	0.03	0.06	0.02	0.03	0.01	0.05	0.03	0.00	0.02	0.02	0.07	0.02	0.02
LOI	0.96	0.36	0.87	1.52	0.45	0.09	0.34	0.92	0.51	0.00	0.14	0.26	0.62	0.00	0.67	0.07	0.62	0.23
Total:	99.21	99.05	99.69	99.62	99.55	99.25	100.44	99.22	99.34	99.50	99.15	99.31	99.80	100.17	99.06	98.89	100.02	99.95
Mg#	0.85	0.83	0.83	0.82	0.76	0.74	0.72	0.73	0.73	0.73	0.68	0.74	0.53	0.47	0.57	0.73	0.70	0.50
Ca#	0.73	0.72	0.70	0.78	0.64	0.73	0.62	0.68	0.67	0.72	0.75	0.74	0.50	0.69	0.52	0.71	0.68	0.55
CIPW norms:																		
Q	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Or	0.27	0.13	0.46	—	0.19	0.61	0.53	0.34	0.25	0.40	0.34	0.34	0.46	0.21	0.46	0.26	0.28	0.90
Ab	18.60	20.88	19.75	15.25	31.65	20.65	32.52	26.84	26.69	21.16	20.07	22.53	43.53	22.04	42.14	23.10	26.92	35.30
An	42.95	46.86	47.72	44.37	39.21	23.55	29.16	26.30	29.96	24.53	15.58	24.16	29.46	14.26	47.87	25.37	22.41	20.11
Ne	0.49	—	0.89	1.93	0.32	—	—	—	1.06	0.49	—	—	—	0.37	0.21	—	—	—
Di	10.30	8.61	4.72	21.46	16.67	27.85	22.02	28.57	26.32	28.10	40.05	35.60	13.68	32.20	1.54	28.20	31.35	21.44
Hy	—	0.44	—	—	—	0.92	1.33	2.47	—	—	10.95	0.59	0.81	—	—	1.48	8.28	9.08
Ol	24.64	20.87	24.28	14.01	9.81	23.41	12.29	11.95	12.69	22.61	8.22	13.63	4.90	15.99	4.90	17.80	7.74	5.78
Mt	0.73	0.71	0.74	0.65	0.65	1.47	0.98	1.06	0.99	1.47	1.62	1.15	1.00	2.88	0.41	1.33	1.26	1.81
Il	0.27	0.23	0.27	0.40	0.58	0.73	1.20	0.80	0.88	0.81	2.17	1.08	5.39	12.37	0.86	1.20	1.21	5.39
Ap	0.05	0.02	0.04	0.06	0.05	0.06	0.14	0.05	0.07	0.03	0.12	0.06	0.01	0.05	0.04	0.17	0.05	0.05
Calculated cation proportions:																		
Li	2.51	3.53	4.76	2.98	4.45	5.09	4.29	2.38	1.42	4.19	2.59	3.35	1.21	1.37	2.82	5.43	1.64	1.95
Sc	11.5	9.7	7.5	24.8	24.3	41.3	38.6	42.6	37.6	40.7	69.1	53.3	26.2	61.4	3.0	42.7	51.4	39.5
V	42.0	33.1	28.0	88.5	95.9	157	136	165	150	152	287	208	243	816	34.0	176	207	311
Cr	601	322	116	955	47.0	76.3	136	47.1	88.4	104	33.4	175	5.32	15.9	3.85	185	26.7	6.57
Co	46.9	41.0	44.7	34.4	25.3	58.4	31.6	43.1	36.4	55.0	47.1	40.7	22.8	61.7	11.8	50.7	39.4	39.2
Ni	312	270	278	229	53.9	120	73.4	71.8	64.3	97.5	48.7	66.1	23.1	48.2	24.3	97.8	47.1	28.1
Cu	67.0	79.4	45.3	38.9	37.1	49.1	38.0	68.6	19.4	28.3	59.2	53.8	10.1	78.1	47.2	50.2	9.8	51.3
Zn	27.5	26.9	31.5	25.6	28.1	61.2	53.2	36.6	31.0	55.6	66.0	43.6	30.4	137	17.7	53.1	41.7	89.2
Ga	9.94	11.1	10.9	10.5	14.7	10.5	17.1	12.9	13.2	10.5	12.7	11.6	19.9	18.6	18.9	12.0	14.0	20.9
Rb	0.357	0.084	0.313	0.207	0.251	0.555	0.346	0.246	0.176	0.234	0.298	0.156	0.283	0.150	0.271	0.201	0.193	0.401
Sr	159	177	172	155	198	117	147	141	166	127	95.6	132	219	104	275	141	138	163
Y	3.03	2.28	2.48	6.42	7.55	11.6	54.3	15.0	10.2	9.91	37.4	15.6	13.3	34.4	3.26	14.2	21.2	34.1
Zr	5.98	3.84	5.55	8.77	19.3	21.0	29.0	16.4	15.6	12.9	67.2	29.4	26.8	92.7	11.6	41.6	31.7	44.0
Nb	0.054	0.038	0.091	0.140	0.200	0.184	3.065	0.391	0.187	0.132	0.960	0.251	1.355	2.688	0.399	0.665	0.343	2.444

Notes: * = ODP sample designations are listed in Table T1, p. 29. — = the normative mineral is absent. ND = not detected. Major element oxides were analyzed on a Varian Liberty 200 ICP-AES at Queensland University of Technology following the procedure of Kwiecien (1990). Precision (1 σ) for most elements based on USGS standards (BCR-1, BIR-1, and AGV-1) is <1% with the exception of TiO₂ (1.3%) and P₂O₅ (2.0%). Mg# = Mg/[Mg+Fe²⁺] with 10% of total Fe assumed to be Fe³⁺. Trace elements were analyzed on a PQ2 ICP-MS at The University of Queensland with sample preparation procedure and instrumental conditions following Niu and Batiza (1997) and Eggins et al., (1997).

Table T8 (continued).

Sample:*	MS60-19	MS70-20	MS71-21	MS72 -22	MS74-23	MS76-24	MS78-25	MS79-26	MS82-27	MS84-28	MS89-29	MS90-30	MS91-31	MS92-32	MS93-33	MS95-34	MS97-35	MS98-36
Major element oxides (wt%):																		
SiO ₂	52.39	50.69	48.51	50.41	51.09	52.63	52.20	51.29	51.72	51.80	52.33	51.94	51.65	51.11	50.50	48.69	51.62	48.46
TiO ₂	0.43	0.71	0.53	0.71	0.37	0.40	0.70	0.29	0.38	0.28	0.38	0.33	0.40	0.50	0.36	0.33	0.46	0.27
Al ₂ O ₃	16.33	16.04	17.22	20.26	15.86	18.85	15.04	18.61	15.85	20.29	16.63	19.09	15.15	14.00	16.06	14.36	15.43	13.45
FeOt	5.19	7.54	8.16	5.54	5.47	3.51	4.58	4.45	4.83	3.90	5.52	5.29	5.06	5.25	5.66	7.59	4.18	8.61
MnO	0.12	0.15	0.14	0.10	0.12	0.09	0.12	0.09	0.11	0.09	0.12	0.10	0.12	0.13	0.12	0.14	0.11	0.16
MgO	8.11	9.37	12.10	7.52	10.38	7.07	9.08	8.47	9.70	6.85	9.11	7.61	9.75	10.78	11.13	13.95	9.38	15.05
CaO	13.65	11.53	9.50	11.27	13.76	14.10	15.12	12.62	14.41	13.35	13.10	11.79	14.48	15.65	14.00	11.96	16.21	11.70
Na ₂ O	2.96	2.91	2.82	3.31	2.52	3.09	2.55	3.03	2.51	3.24	2.78	3.44	2.37	2.40	2.48	2.27	2.50	2.28
K ₂ O	0.04	0.10	0.07	0.05	0.04	0.05	0.02	0.03	0.03	0.00	0.00	0.02	0.02	0.04	0.02	0.03	0.06	0.00
P ₂ O ₅	0.01	0.01	0.04	0.03	0.00	0.01	0.03	0.02	0.00	0.00	0.02	0.00	0.02	0.02	0.01	0.00	0.00	0.00
LOI	0.19	0.06	0.03	0.21	0.19	0.38	0.27	0.14	0.25	0.24	0.22	0.02	0.30	0.28	0.11	0.32	0.35	0.03
Total:	99.43	99.12	99.12	99.42	99.81	100.20	99.70	99.04	99.80	100.04	100.22	99.63	99.31	100.15	100.45	99.63	100.31	100.02
Mg#	0.76	0.71	0.75	0.73	0.79	0.80	0.80	0.79	0.80	0.78	0.77	0.74	0.79	0.80	0.80	0.78	0.82	0.78
Ca#	0.72	0.69	0.65	0.65	0.75	0.72	0.77	0.70	0.76	0.69	0.72	0.65	0.77	0.78	0.76	0.74	0.78	0.74
CIPW norms:																		
Q	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Or	0.24	0.60	0.40	0.31	0.23	0.32	0.09	0.15	0.18	—	0.02	0.12	0.12	0.23	0.11	0.16	0.37	—
Ab	25.07	24.66	23.87	28.00	21.36	26.16	21.54	25.65	21.27	27.43	23.52	29.14	20.03	18.48	20.51	19.22	19.21	17.74
An	31.15	30.40	34.11	40.29	31.82	37.41	29.55	37.10	31.89	40.80	32.89	36.57	30.64	27.30	32.63	28.91	30.70	26.45
Ne	—	—	—	—	—	—	—	—	—	—	—	—	—	1.00	0.26	—	1.05	0.85
Di	29.34	21.58	10.25	12.40	29.18	25.95	36.09	20.30	31.63	20.37	25.64	17.66	32.86	40.10	29.41	24.38	39.63	25.36
Hy	6.93	7.61	4.32	4.41	3.93	4.80	6.09	5.28	5.41	2.37	10.49	5.23	8.12	—	—	0.00	—	—
Ol	4.90	11.72	23.82	11.54	11.58	3.86	3.96	9.15	7.71	7.71	5.83	9.47	5.68	10.99	15.87	24.89	7.49	27.78
Mt	0.84	1.22	1.32	0.89	0.88	0.57	0.74	0.72	0.78	0.63	0.89	0.85	0.81	0.85	0.91	1.22	0.67	1.39
Il	0.81	1.34	1.00	1.35	0.70	0.77	1.33	0.55	0.73	0.53	0.73	0.63	0.76	0.94	0.69	0.62	0.88	0.52
Ap	0.02	0.03	0.10	0.08	—	0.02	0.08	0.06	—	—	0.06	—	0.04	0.04	0.01	—	0.00	—
Trace elements (ppm):																		
Li	2.25	3.15	4.31	5.20	4.64	2.27	ND	2.27	2.60	2.47	2.40	4.09	2.86	2.71	3.70	3.34	2.06	2.01
Sc	43.8	31.7	17.2	19.2	40.7	37.8	ND	30.4	45.7	27.6	39.6	26.7	46.3	53.0	41.7	33.4	53.5	34.3
V	174	131	86.4	103	152	143	ND	112	167	102	152	108	170	194	149	118	192	122
Cr	53.4	115	47.6	51.7	192	161	ND	144	203	108	91.6	62.6	292	311	174	178	283	112
Co	31.3	41.8	60.0	36.6	39.0	21.9	ND	32.5	34.6	27.4	37.4	36.1	36.4	34.3	40.6	58.9	26.4	66.1
Ni	48.5	90.8	156	103	103	49.3	ND	76.2	103	64.6	88.5	72.7	97.1	85.2	101	147	63.6	159
Cu	28.4	42.6	36.4	79.7	43.9	29.4	ND	36.2	89.2	38.1	62.0	28.0	69.3	45.4	37.3	42.8	30.0	29.6
Zn	30.5	57.1	59.0	37.6	34.6	20.2	ND	27.9	28.2	24.3	34.9	36.0	29.6	29.6	41.2	45.8	23.2	53.7
Ga	13.6	14.1	12.3	14.8	11.4	13.3	ND	12.7	11.4	13.6	12.5	14.8	11.3	11.1	11.2	10.0	11.4	10.0
Rb	0.115	0.137	0.151	0.199	0.125	0.163	ND	0.147	0.082	0.080	0.074	0.132	0.116	0.099	0.095	0.091	0.080	0.054
Sr	167	163	171	205	150	184	ND	182	150	200	165	198	145	134	150	137	145	129
Y	12.4	12.6	6.78	8.14	10.3	10.0	ND	8.23	9.84	5.84	10.1	8.07	11.0	12.9	8.46	7.16	11.4	7.43
Zr	20.6	23.2	29.0	28.7	22.7	20.3	ND	34.6	12.4	7.45	13.8	15.7	21.0	22.6	12.3	10.8	14.5	8.89
Nb	0.132	0.588	0.646	0.779	0.203	0.309	ND	0.306	0.102	0.105	0.051	0.152	0.124	0.228	0.120	0.101	0.137	0.048

Table T8 (continued).

Sample:*	MS99-37	MS101-38	BN3(F)	BN4(F)	BN5(F)	BN6(F)	BN7(F)	BN8(F)	BN9(F)	BN10(F)	BN11(F)	BN12(F)	BN13(F)	BN14(F)	BN15(F)	BN16(F)	BN17(F)	BN18(F)
Major element oxides (wt%):																		
SiO ₂	50.39	50.69	51.94	53.30	51.23	51.57	46.80	51.43	49.48	51.26	51.24	49.60	51.18	50.04	49.08	51.09	51.34	50.61
TiO ₂	0.34	0.31	0.43	0.67	0.37	0.49	0.16	0.41	0.56	0.62	0.40	0.45	0.41	0.81	0.27	0.41	0.28	0.46
Al ₂ O ₃	16.91	17.83	18.18	21.26	20.98	15.75	23.07	20.75	14.57	15.31	15.01	14.27	15.29	16.43	16.82	16.02	16.55	14.57
FeOt	4.68	4.62	4.78	3.45	4.38	5.50	4.13	4.00	6.60	7.48	7.74	7.66	6.00	6.84	6.59	5.86	5.24	6.54
MnO	0.10	0.10	0.11	0.08	0.08	0.13	0.07	0.08	0.16	0.16	0.16	0.16	0.13	0.14	0.12	0.12	0.11	0.14
MgO	9.49	8.91	7.00	4.22	5.00	9.51	11.21	5.80	9.73	9.41	10.25	11.74	10.16	9.40	11.11	10.25	9.90	11.33
CaO	14.22	14.02	13.32	12.06	12.83	14.10	12.24	13.49	14.51	12.98	12.23	13.21	13.88	13.02	11.99	13.03	13.25	13.46
Na ₂ O	2.81	2.94	3.56	4.09	3.47	2.69	2.37	3.54	2.54	2.85	2.75	2.47	2.57	2.77	2.71	2.71	2.61	2.71
K ₂ O	0.00	0.02	0.06	0.10	0.08	0.13	0.02	0.06	0.05	0.04	0.04	0.03	0.04	0.04	0.02	0.03	0.01	0.04
P ₂ O ₅	0.01	0.01	0.01	0.05	0.04	0.02	0.02	0.04	0.05	0.05	0.03	0.02	0.03	0.02	0.02	0.02	0.00	0.00
LOI	0.48	0.48	1.07	0.42	0.91	0.78	0.84	0.78	1.36	0.14	0.06	0.20	0.65	0.73	0.38	0.55	0.32	0.26
Total:	99.45	99.93	100.46	99.70	99.37	100.66	100.93	100.39	99.61	100.30	99.91	99.81	100.34	100.25	99.12	100.10	99.61	100.12
Mg#	0.80	0.79	0.74	0.71	0.69	0.77	0.84	0.74	0.74	0.71	0.72	0.75	0.77	0.73	0.77	0.78	0.79	0.77
Ca#	0.74	0.73	0.67	0.62	0.67	0.74	0.74	0.68	0.76	0.72	0.71	0.75	0.75	0.72	0.71	0.73	0.74	0.73
CIPW norms:																		
Q	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Or	0.01	0.11	0.33	0.60	0.45	0.77	0.14	0.38	0.32	0.26	0.24	0.21	0.25	0.24	0.13	0.19	0.04	0.26
Ab	21.44	22.63	28.41	34.63	29.37	22.79	15.43	27.77	18.89	24.11	23.27	19.88	21.74	23.46	22.48	22.89	22.11	21.67
An	33.50	35.41	33.43	39.34	41.44	30.49	52.27	40.54	28.21	28.84	28.48	27.74	30.07	32.28	33.65	31.48	33.40	27.43
Ne	1.28	1.20	0.95	—	—	—	2.49	1.19	1.39	—	—	0.56	—	—	0.27	—	—	0.70
Di	29.55	27.28	26.22	16.24	17.80	31.50	6.59	21.00	34.95	28.48	25.88	30.32	31.00	25.89	20.63	26.50	25.88	31.54
Hy	—	—	—	5.15	2.01	2.12	—	—	—	4.12	7.55	—	3.45	0.75	—	4.65	7.20	—
Ol	11.80	11.50	8.50	1.43	5.93	10.41	22.22	7.26	12.32	11.95	12.44	18.86	11.45	14.27	20.04	12.12	9.35	16.40
Mt	0.75	0.74	0.77	0.56	0.71	0.89	0.67	0.64	1.06	1.21	1.25	1.23	0.97	1.10	1.06	0.94	0.84	1.05
Il	0.65	0.59	0.81	1.27	0.71	0.93	0.29	0.78	1.06	1.18	0.76	0.85	0.79	1.55	0.51	0.79	0.53	0.87
Ap	0.03	0.02	0.02	0.12	0.09	0.05	0.05	0.10	0.12	0.11	0.06	0.04	0.06	0.06	0.05	0.05	—	—
Trace elements (ppm):																		
Li	1.65	3.37	3.54	2.74	8.35	4.69	3.41	3.38	4.66	3.18	2.46	3.76	3.45	6.26	3.88	5.15	3.95	3.18
Sc	39.1	35.5	34.3	26.4	25.9	53.3	9.40	30.3	56.0	44.2	38.6	43.2	44.7	39.2	26.9	37.4	35.4	45.0
V	142	127	127	109	107	168	35.3	118	200	169	157	166	164	159	106	140	123	173
Cr	143	137	37.6	69.8	86.7	132	387	80.6	233	50.7	22.2	64.7	81.5	158	179	136	159	104
Co	34.4	32.6	30.7	18.0	37.2	34.5	41.9	24.8	35.3	42.6	55.0	51.6	41.7	40.0	50.4	42.2	39.4	44.9
Ni	96.0	85.3	52.5	45.7	70.4	68.8	286.6	54.9	67.2	64.2	75.4	90.2	79.2	95.7	118	116	95.5	95.2
Cu	69.7	58.7	30.6	52.0	57.5	37.1	81.2	17.9	58.7	55.9	68.2	67.2	80.4	67.0	41.2	115.2	68.4	67.3
Zn	26.1	25.1	24.8	25.3	38.2	32.7	19.2	21.6	37.1	44.9	39.2	38.6	33.3	43.2	36.3	31.5	30.0	35.9
Ga	12.1	12.6	14.1	17.1	14.6	11.6	11.0	15.0	11.8	12.9	13.0	11.8	11.9	13.4	11.7	12.1	11.8	11.9
Rb	0.066	0.071	0.307	0.274	0.897	0.802	0.122	0.302	0.262	0.133	0.065	0.095	0.130	0.138	0.083	0.231	0.080	0.152
Sr	164	172	193	217	210	151	179	198	128	155	160	142	146	164	167	158	167	149
Y	8.18	7.16	14.5	13.6	9.17	11.2	2.60	9.30	18.0	15.0	9.14	11.2	9.67	13.1	6.62	10.7	6.70	11.8
Zr	9.61	7.33	40.9	26.4	20.4	18.4	5.7	17.6	30.8	33.1	11.6	16.9	13.2	26.4	11.1	34.5	6.84	27.6
Nb	0.058	0.035	0.564	1.080	0.295	0.243	0.117	0.282	0.294	0.389	0.102	0.127	0.125	0.443	0.105	0.522	0.046	0.169

Table T8 (continued).

Sample:*	BN19(F)	BN20(F)	BN1(AM)	BN2(A)	BN3(A)	BN4(A)	BN5(A)	BN6(A)	BN7(A)	BN8(A)	BN9(A)	BN10(A)	BN11(A)	BN12(A)	BN13(A)	BN14(A1)	BN14(A2)	BN15(A)
Major element oxides (wt%):																		
SiO ₂	50.17	48.54	38.37	48.52	50.54	50.16	51.74	50.69	45.67	50.91	47.92	50.05	50.25	51.25	52.10	50.05	50.15	48.89
TiO ₂	0.45	0.26	0.20	0.18	0.47	0.59	0.54	0.36	0.16	0.35	0.48	0.54	0.41	0.42	0.24	0.57	0.46	0.36
Al ₂ O ₃	11.91	16.62	20.68	16.87	15.76	13.86	14.10	17.52	19.70	20.06	15.91	17.25	15.22	17.68	21.59	18.52	17.01	15.47
FeOt	6.84	6.23	4.93	6.64	6.22	6.66	5.40	5.32	5.00	4.13	6.73	5.93	6.97	4.40	3.58	4.72	4.81	6.16
MnO	0.15	0.12	0.08	0.12	0.14	0.16	0.14	0.11	0.10	0.10	0.14	0.13	0.15	0.11	0.07	0.09	0.11	0.13
MgO	14.68	11.76	3.57	12.97	7.90	9.04	9.21	8.50	12.95	6.72	10.05	8.26	9.82	7.42	5.20	6.76	7.84	9.93
CaO	14.51	11.84	20.37	9.79	14.24	15.02	15.96	12.38	10.93	13.83	12.41	12.91	12.97	14.30	11.82	11.82	13.50	12.00
Na ₂ O	1.77	2.41	2.48	2.10	3.12	2.54	2.41	3.18	1.92	3.29	2.72	3.19	2.69	3.08	3.70	4.02	3.18	3.18
K ₂ O	0.00	0.03	0.09	0.53	0.07	0.09	0.08	0.10	0.56	0.05	0.05	0.05	0.04	0.04	0.22	0.23	0.18	0.02
P ₂ O ₅	0.00	0.03	0.20	0.02	0.05	0.01	0.02	0.05	0.02	0.02	0.03	0.06	0.01	0.00	0.02	0.03	0.03	0.00
LOI	0.40	1.40	9.45	2.28	1.61	1.52	0.96	2.63	2.96	1.28	2.92	1.69	1.74	1.23	2.04	2.94	3.33	3.48
Total:	100.87	99.23	100.42	100.03	100.12	99.66	100.55	100.85	99.98	100.74	99.35	100.07	100.28	99.91	100.57	99.74	100.59	99.62
Mg#	0.81	0.79	0.59	0.79	0.72	0.73	0.77	0.76	0.84	0.76	0.75	0.73	0.74	0.77	0.74	0.74	0.76	0.76
Ca#	0.82	0.73	0.82	0.72	0.72	0.77	0.79	0.68	0.76	0.70	0.72	0.69	0.73	0.72	0.64	0.62	0.70	0.68
CIPW norms:																		
Q	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Or	—	0.17	—	3.13	0.41	0.53	0.45	0.59	3.34	0.29	0.29	0.32	0.26	0.21	1.31	1.34	1.08	0.10
Ab	14.95	20.38	—	17.80	22.60	19.64	20.35	26.87	13.43	25.01	20.65	24.87	22.75	25.07	31.35	27.20	23.56	23.70
An	24.56	34.44	45.05	35.04	28.77	26.17	27.46	33.26	43.48	39.82	31.05	32.61	29.32	34.31	41.61	31.79	31.59	27.89
Ne	—	—	11.36	—	2.08	1.00	—	—	1.51	1.54	1.29	1.14	—	0.53	—	3.71	1.83	1.72
Di	37.85	19.32	13.72	10.71	33.55	38.94	41.40	22.36	8.47	23.04	24.40	25.03	28.16	29.35	13.60	21.47	28.27	25.43
Hy	2.29	2.82	—	9.87	—	—	0.80	1.11	—	—	—	—	2.69	—	4.19	—	—	—
Ol	18.94	19.20	7.08	19.81	9.15	9.72	7.26	12.42	25.69	8.43	16.77	12.36	13.50	7.75	5.45	9.45	9.29	15.69
Mt	1.10	1.00	0.79	1.07	1.00	1.07	0.87	0.86	0.81	0.67	1.08	0.96	1.12	0.71	0.58	0.76	0.77	0.99
Il	0.86	0.50	0.38	0.34	0.89	1.13	1.03	0.69	0.31	0.67	0.91	1.02	0.77	0.80	0.46	1.07	0.87	0.69
Ap	—	0.07	0.48	0.06	0.12	0.02	0.04	0.12	0.04	0.04	0.08	0.14	0.03	0.01	0.05	0.06	0.06	—
Trace elements (ppm):																		
Li	3.75	1.18	2.95	10.4	2.44	11.8	7.50	7.32	19.59	4.58	6.28	4.14	4.88	4.53	5.18	6.62	8.15	28.64
Sc	51.2	30.4	8.77	13.7	45.5	58.2	57.7	33.3	16.2	32.2	39.2	42.6	48.4	41.8	19.9	39.8	40.7	38.6
V	192	104	60.0	50.7	173	225	213	124	31.5	122	151	162	170	161	70.6	138	152	133
Cr	341	189	83.4	311	52.9	129	211	89.4	242.5	88.4	192	63.1	27.1	62.9	33.1	133	146	209
Co	53.1	49.4	41.5	48.5	36.8	34.0	48.1	32.3	45.5	27.2	37.0	37.7	48.5	28.2	26.2	29.4	27.3	43.3
Ni	130	136	167	268	69.7	74.3	86.9	62.7	309	61.5	70.9	70.2	70.7	49.4	47.5	73.9	66.3	107
Cu	43.9	90.9	37.8	15.5	41.1	66.3	68.3	55.8	39.8	30.3	70.9	36.8	69.1	63.5	36.1	46.5	41.6	60.4
Zn	37.5	31.5	29.4	36.2	32.4	42.7	49.4	29.0	35.1	22.3	33.4	34.1	33.6	24.4	21.4	30.3	27.5	31.5
Ga	8.8	11.2	11.7	11.7	13.1	12.0	11.3	12.5	11.3	14.2	12.3	13.7	12.9	14.2	15.0	12.7	12.6	11.6
Rb	0.060	0.148	0.720	3.169	0.415	0.387	0.771	0.415	5.42	0.218	0.244	0.230	0.148	0.121	0.818	0.929	0.790	0.410
Sr	107	151	238	126	154	136	136	159	154	185	140	156	150	178	213	170	175	139
Y	10.9	6.01	3.77	22.3	16.1	16.9	14.9	10.2	18.6	7.97	13.7	11.8	9.61	10.4	4.90	11.9	13.3	8.67
Zr	16.0	7.62	6.16	13.8	34.5	26.2	20.1	15.5	10.9	11.7	40.9	28.1	9.47	12.6	7.45	25.0	25.2	17.8
Nb	0.135	0.078	0.100	1.598	0.269	0.236	0.191	0.221	1.97	0.144	0.514	0.384	0.058	0.109	0.116	0.333	0.198	0.207

Table T8 (continued).

Sample:*	BN16(A)	BN17(A)	BN18(A)	BN20(A)	BN19(A)	FV2-1	FV5-2	FV13-3	FV21-4	FV29-5	FV35-6	FV37-7	FV39-8	FV45-9	FV47-10	FV50-11	FV57-12	FV58-13	
Major element oxides (wt%):																			
SiO ₂	49.73	50.22	50.98	49.23	50.55	ND	59.78	74.79	62.75	60.70	59.21	64.10	62.52	62.91	69.80	62.71	61.46	60.68	
TiO ₂	0.37	0.28	0.39	0.26	0.34	ND	0.15	0.13	0.28	0.90	1.50	0.48	0.80	0.40	0.34	0.39	0.52	0.51	
Al ₂ O ₃	17.89	15.13	16.82	14.89	18.42	ND	17.60	14.56	18.45	17.47	17.46	16.67	16.56	16.50	16.37	15.97	19.53	15.69	
FeOt	5.24	6.03	5.47	6.22	4.68	ND	2.22	0.96	1.58	2.49	2.86	2.88	2.63	4.24	1.86	3.54	3.98	5.52	
MnO	0.10	0.12	0.11	0.11	0.10	ND	0.05	0.01	0.02	0.04	0.05	0.06	0.08	0.07	0.02	0.07	0.06	0.12	
MgO	8.63	10.69	7.86	11.67	8.26	ND	7.36	0.42	2.29	3.54	2.99	2.32	1.43	2.96	0.48	5.07	1.22	4.76	
CaO	11.23	13.00	12.27	12.26	13.52	ND	5.22	1.73	5.86	7.27	7.19	3.41	4.62	5.46	2.87	7.84	4.21	6.90	
Na ₂ O	3.30	2.40	3.18	2.49	2.89	ND	5.64	6.93	8.11	7.01	6.94	8.45	9.22	6.20	6.85	4.61	7.82	5.02	
K ₂ O	0.10	0.03	0.04	0.08	0.08	ND	0.43	0.30	0.10	0.09	0.10	0.07	0.03	0.57	0.51	0.28	0.35	0.33	
P ₂ O ₅	0.04	0.00	0.01	0.00	0.00	ND	0.00	0.01	0.00	0.09	0.07	0.01	0.07	0.03	0.01	0.02	0.05	0.00	
LOI	3.14	1.92	2.04	2.40	1.41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Total:	99.78	99.82	99.18	99.61	100.24		98.46	99.83	99.46	99.60	98.36	98.43	97.95	99.34	99.10	100.48	99.20	99.54	
Mg#	0.77	0.78	0.74	0.79	0.78	—	0.87	0.46	0.74	0.74	0.67	0.61	0.52	0.58	0.34	0.74	0.38	0.63	
Ca#	0.65	0.75	0.68	0.73	0.72	—	0.34	0.12	0.29	0.36	0.36	0.18	0.22	0.33	0.19	0.48	0.23	0.43	
CIPW norms:																			
Q	—	—	—	—	—	—	2.62	28.62	1.60	2.07	1.97	4.30	—	8.34	20.49	11.85	2.20	7.89	
Or	0.59	0.16	0.24	0.47	0.50	—	2.53	1.75	0.60	0.52	0.57	0.39	0.19	3.35	3.00	1.67	2.06	1.95	
Ab	27.95	20.34	26.90	21.03	24.38	—	47.75	58.64	68.65	59.35	58.72	71.47	77.25	52.46	57.93	39.02	66.14	42.50	
An	33.70	30.42	31.51	29.25	37.04	—	21.42	7.74	13.64	15.93	16.21	7.37	3.68	15.53	12.43	22.04	17.18	19.30	
Ne	—	—	—	—	0.02	—	—	—	—	—	—	—	0.43	—	—	—	—	—	
Di	17.42	27.31	23.60	25.31	24.07	—	3.53	0.69	12.41	15.61	15.14	7.76	13.17	9.34	1.45	13.44	2.83	12.22	
Hy	1.24	6.75	5.50	2.66	—	—	19.99	1.99	1.80	3.85	2.30	5.79	—	8.86	2.84	11.15	7.09	13.88	
Ol	14.15	11.48	7.79	17.07	11.48	—	—	—	—	—	—	—	—	—	—	—	—	—	
Mt	0.84	0.97	0.88	1.00	0.75	—	0.36	0.15	0.25	0.40	0.46	0.46	0.42	0.68	0.30	0.57	0.64	0.89	
Il	0.70	0.53	0.75	0.50	0.64	—	0.29	0.25	0.53	1.71	2.85	0.91	1.52	0.75	0.65	0.74	0.98	0.97	
Ap	0.11	—	0.03	—	0.00	—	0.01	0.01	—	0.21	0.17	0.02	0.16	0.07	0.02	0.05	0.13	—	
Trace elements (ppm):																			
Li	38.00	6.34	3.77	1.62	9.78	7.94	6.32	1.90	1.06	0.71	1.08	1.03	0.88	5.54	2.82	2.73	2.19	5.85	
Sc	26.8	40.1	36.6	34.4	33.9	9.91	3.84	1.02	10.9	11.1	17.8	6.64	4.13	12.2	2.00	18.7	2.75	16.8	
V	102	137	131	119	126	66.1	12.3	7.0	37.0	63.3	76.8	42.8	38.6	46.8	17.3	64.5	27.5	79.2	
Cr	93.8	197	78.6	239	219	183	257	2.51	16.0	8.92	12.5	20.4	5.52	41.9	0.54	138	1.22	10.7	
Co	40.1	47.3	35.6	46.1	35.1	20.4	19.1	2.90	6.73	11.1	11.0	8.41	9.86	15.8	3.22	20.9	8.92	25.4	
Ni	107	120	77.9	133	99.1	98.6	134	5.54	16.0	23.9	26.0	16.2	21.0	34.6	4.63	57.8	9.46	29.8	
Cu	86.3	96.7	47.1	31.5	78.6	2.80	22.5	29.8	3.23	2.35	5.60	2.68	4.43	26.7	7.47	12.0	4.38	33.8	
Zn	30.0	29.2	33.4	25.7	25.3	13.0	30.1	8.37	6.29	6.43	12.2	11.3	9.72	33.1	12.4	25.6	28.4	45.3	
Ga	12.1	11.4	13.9	10.8	12.0	15.5	23.2	24.7	28.5	25.9	27.4	23.4	24.1	25.2	28.4	18.5	33.2	20.0	
Rb	0.749	0.221	0.203	0.243	0.307	1.37	3.564	0.736	0.425	0.222	0.23	0.11	0.07	5.45	2.06	1.21	1.16	2.31	
Sr	168	144	172	142	177	271	113	59.3	170	187	169	46.9	45.9	112	77.6	122	193	130	
Y	7.56	7.06	12.2	7.04	8.62	53.8	54.7	35.9	38.6	65.4	116	82.8	93.2	86.9	55.2	62.3	25.1	42.6	
Zr	33.3	5.62	24.1	6.46	15.0	59.5	65.6	81.5	179	308	3532	65.6	327	1954	106	94.6	103	48.5	
Nb	0.609	0.034	0.154	0.134	0.136	3.77	5.706	3.987	5.227	7.988	13.8	12.8	18.0	4.84	7.67	6.22	4.16	5.42	

Table T8 (continued).

Sample:*	FV-61-14	FV62-15	FV63-16	FV65-17	FV66-18	FV81-20	FV94-21	FV67-19
Major element oxides (wt%):								
SiO ₂	56.36	50.53	59.36	62.17	63.03	54.21	62.56	56.35
TiO ₂	0.40	2.71	0.50	1.02	1.46	0.58	0.89	0.35
Al ₂ O ₃	16.16	17.68	14.84	15.71	15.91	19.57	17.74	12.53
FeOt	4.59	15.61	4.74	7.23	5.31	4.91	2.68	7.01
MnO	0.11	0.12	0.11	0.06	0.11	0.08	0.06	0.17
MgO	6.06	2.35	5.57	2.64	2.54	2.02	2.32	6.51
CaO	12.15	6.10	8.90	3.04	4.89	5.99	4.02	11.93
Na ₂ O	3.88	5.45	5.02	6.85	6.12	7.81	8.19	4.14
K ₂ O	0.31	0.21	0.18	0.18	0.23	0.22	0.13	0.17
P ₂ O ₅	0.07	0.25	0.03	0.14	0.10	0.11	0.00	1.03
LOI	ND	ND	ND	ND	ND	ND	ND	ND
Total:	100.10	101.00	99.24	99.03	99.71	95.50	98.59	100.20
Mg#	0.72	0.23	0.70	0.42	0.49	0.45	0.63	0.65
Ca#	0.63	0.38	0.49	0.20	0.31	0.30	0.21	0.61
CIPW norms:								
Q	2.01	—	4.84	7.73	11.59	—	2.95	2.45
Or	1.82	1.24	1.03	1.06	1.38	1.28	0.75	1.00
Ab	32.87	45.95	42.48	57.95	51.82	52.06	69.31	35.06
An	25.74	23.13	17.43	11.59	15.24	17.70	11.26	15.09
Ne	—	0.11	—	—	—	7.61	—	—
Di	27.49	4.72	21.45	2.20	6.89	9.44	7.02	30.49
Hy	8.54	—	10.27	15.17	8.99	—	5.19	12.00
Ol	—	17.78	—	—	—	5.32	—	—
Mt	0.74	2.52	0.76	1.16	0.85	0.79	0.43	1.13
Il	0.77	5.15	0.95	1.94	2.77	1.10	1.70	0.67
Ap	0.17	0.59	0.07	0.32	0.24	0.26	—	2.44
Trace elements (ppm):								
Li	3.76	1.51	1.94	3.16	4.65	2.27	0.55	1.27
Sc	40.5	11.0	36.2	3.30	11.3	8.41	12.6	45.6
V	135	120	120	45.4	52.3	35.7	25.5	92.5
Cr	82.7	5.18	33.3	1.42	17.8	5.51	21.0	261
Co	21.5	29.2	21.9	13.0	14.1	11.2	8.72	26.0
Ni	37.3	36.8	35.0	12.4	19.3	11.2	10.6	60.3
Cu	26.6	24.3	50.9	14.1	13.5	63.5	3.65	9.64
Zn	39.0	62.8	38.0	23.6	44.7	35.4	22.3	59.1
Ga	18.6	37.3	22.1	32.4	26.1	23.7	29.8	20.5
Rb	1.91	0.31	0.47	0.80	0.65	1.55	0.08	0.25
Sr	161	175	129	121	139	182	153	120
Y	48.0	77.2	60.1	135	70.3	31.2	77.0	132
Zr	35.8	1328	41.1	517	1680	235	40.8	64.1
Nb	0.84	19.9	3.75	7.33	16.3	2.56	8.66	1.70