

Table 3.

Sample	GR1.1	GR1.2	GR1.3	GR1.4	GR1.5	GR1.6	GR1.7	GR1.8	GR1.9	GR1.10	GR1.11	GR1.12	GR1.13	GR1.14	GR1.15
SiO₂	38.75	38.19	38.15	38.12	37.37	37.47	37.38	37.92	37.56	37.39	37.67	37.39	37.48	37.49	37.70
FeO	28.77	30.50	31.14	31.24	31.47	31.78	31.95	31.57	31.54	31.56	31.25	32.32	31.72	32.14	32.47
Al₂O₃	21.09	20.36	20.24	20.32	20.28	20.47	20.56	20.63	20.54	20.31	20.49	20.25	20.30	19.95	20.09
CaO	7.16	7.37	7.87	7.73	7.51	7.11	7.68	7.04	7.74	6.96	7.02	7.51	7.65	7.23	6.89
MgO	3.30	3.02	2.75	2.76	2.69	2.61	2.48	2.47	2.26	2.36	2.32	2.27	2.29	2.32	2.27
MnO	0.90	0.63	0.61	0.57	0.60	0.60	0.61	0.66	0.65	0.71	0.83	0.89	0.90	0.92	0.97
TiO₂	0.05	0.06	0.10	0.10	0.12	0.10	0.12	0.08	0.13	0.15	0.10	0.16	0.13	0.12	0.08
Total	100.02	100.13	100.85	100.83	100.04	100.13	100.79	100.36	100.40	99.43	99.67	100.78	100.47	100.16	100.46
<i>Formula on the basis of 24 oxygen</i>															
TSi	6.14	6.07	6.04	6.03	5.96	5.98	5.96	6.04	5.98	6.02	6.05	5.95	5.97	6.00	6.02
Fe²⁺	3.81	4.06	4.12	4.13	4.20	4.24	4.23	4.20	4.20	4.25	4.20	4.30	4.23	4.30	4.34
Al^{VI}	3.93	3.81	3.77	3.79	3.78	3.83	3.79	3.87	3.84	3.85	3.87	3.74	3.78	3.76	3.78
Ca	1.22	1.26	1.33	1.31	1.29	1.22	1.30	1.20	1.32	1.20	1.21	1.28	1.31	1.24	1.18
Mg	0.78	0.72	0.65	0.65	0.64	0.62	0.59	0.59	0.54	0.57	0.55	0.54	0.54	0.55	0.54
Mn	0.12	0.09	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.10	0.11	0.12	0.12	0.13	0.13
TAl	0.00	0.00	0.00	0.00	0.04	0.02	0.04	0.00	0.02	0.00	0.00	0.05	0.03	0.00	0.00
Ti	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.02	0.01	0.02	0.02	0.01	0.01
<i>end-member compositions</i>															
Alm	64.30	66.36	66.63	66.99	67.67	68.87	68.21	69.15	68.35	69.50	69.13	68.94	68.20	69.17	70.11
Gross	20.50	20.54	21.57	21.21	20.64	19.73	20.98	19.72	21.50	19.60	19.89	20.52	21.04	19.89	19.03
Pyrope	13.16	11.72	10.48	10.55	10.32	10.08	9.44	9.63	8.74	9.28	9.13	8.62	8.76	8.88	8.73
Spess	2.04	1.39	1.32	1.23	1.31	1.32	1.33	1.46	1.42	1.58	1.85	1.91	1.97	2.01	2.12
Uvaro	0.02	0.00	0.00	0.03	0.06	0.00	0.03	0.04	0.00	0.03	0.00	0.00	0.03	0.06	0.01

Table 3. continued

Sample	GR1.16	GR1.17	GR1.18	GR1.19	GR1.20	GR1.21	GR1.22	GR1.23	GR1.24	GR1.25	GR1.26	GR1.27	GR1.28	GR1.29	GR1.30
SiO₂	37.39	37.62	37.61	37.35	37.32	37.48	36.99	37.86	37.34	37.68	37.40	37.35	37.66	37.69	37.71
FeO	31.96	32.85	31.67	31.73	32.47	31.69	31.96	31.79	31.94	32.18	32.39	32.47	32.10	31.15	31.12
Al₂O₃	20.10	19.84	19.87	20.11	19.87	19.87	19.75	19.87	19.63	19.42	19.46	19.61	19.66	19.95	19.73
CaO	7.36	7.37	7.74	7.43	7.58	7.41	7.78	7.22	7.94	7.75	7.44	7.30	7.83	7.59	7.77
MgO	2.20	2.11	2.08	2.14	2.04	1.97	1.96	2.12	1.88	1.92	2.00	1.89	1.85	1.90	1.89
MnO	1.04	1.10	1.20	1.16	1.25	1.46	1.44	1.58	1.73	1.68	1.73	1.71	1.71	1.75	1.78
TiO₂	0.15	0.11	0.12	0.15	0.11	0.11	0.13	0.11	0.14	0.10	0.08	0.06	0.15	0.08	0.09
Total	100.21	100.99	100.28	100.07	100.63	99.99	100.00	100.54	100.59	100.72	100.50	100.37	100.95	100.10	100.08
<i>Formula on the basis of 24 oxygen</i>															
TSi	5.99	5.99	6.02	5.99	5.96	6.02	5.94	6.05	5.92	6.02	5.99	5.99	6.00	6.05	6.05
Fe²⁺	4.28	4.37	4.24	4.25	4.34	4.26	4.30	4.25	4.37	4.30	4.34	4.36	4.28	4.18	4.18
Al^{VI}	3.78	3.71	3.74	3.78	3.70	3.76	3.68	3.74	3.59	3.65	3.66	3.70	3.69	3.77	3.73
Ca	1.26	1.26	1.33	1.28	1.30	1.28	1.34	1.24	1.35	1.33	1.28	1.26	1.34	1.30	1.34
Mg	0.52	0.50	0.50	0.51	0.49	0.47	0.47	0.51	0.44	0.46	0.48	0.45	0.44	0.45	0.45
Mn	0.14	0.15	0.16	0.16	0.17	0.20	0.20	0.21	0.23	0.23	0.24	0.23	0.23	0.24	0.24
TAl	0.02	0.01	0.00	0.01	0.04	0.00	0.06	0.00	0.08	0.00	0.01	0.01	0.00	0.00	0.00
Ti	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.02	0.01	0.01
<i>end-member compositions</i>															
Alm	68.94	69.66	68.09	68.63	68.98	68.64	68.17	68.49	68.31	68.15	68.59	69.21	68.05	67.68	67.30
Gross	20.32	19.99	21.32	20.56	20.55	20.53	21.21	19.89	21.06	21.03	20.14	19.94	21.28	21.12	21.50
Pyrope	8.45	7.97	7.98	8.23	7.71	7.59	7.46	8.15	6.93	7.23	7.53	7.16	7.00	7.36	7.27
Spess	2.27	2.35	2.61	2.54	2.69	3.20	3.11	3.44	3.64	3.60	3.71	3.69	3.67	3.84	3.89
Uvaro	0.02	0.02	0.00	0.03	0.08	0.04	0.05	0.03	0.05	0.00	0.03	0.00	0.00	0.00	0.03

Table 3. continued

Sample	GR2.1	GR2.2	GR2.3	GR2.4	GR2.5	GR2.6	GR3.1	GR3.2	GR3.3	GR3.4	GR3.5	GR3.6	GR3.7	GR3.8	GR3.9	GR3.10	GR3.11	GR3.12
SiO ₂	37.16	37.39	38.55	37.28	38.42	38.32	37.69	37.16	37.24	37.47	37.63	37.74	37.43	37.48	37.52	37.26	37.49	37.17
FeO	31.77	31.21	31.57	31.90	31.11	31.24	31.28	31.49	31.35	31.63	31.26	31.44	31.53	31.89	31.25	31.28	31.04	31.26
Al ₂ O ₃	20.09	20.05	19.87	19.91	19.86	19.75	20.53	20.57	20.54	20.60	20.25	20.34	20.49	20.20	20.04	19.95	20.08	20.14
CaO	7.15	7.98	7.29	7.97	7.67	7.46	7.09	6.99	7.29	7.26	7.69	7.35	7.35	7.50	7.67	7.85	7.54	7.97
MgO	3.81	3.19	2.96	2.59	2.62	2.26	3.63	3.63	3.42	3.15	2.77	2.78	2.61	2.51	2.27	2.25	2.23	2.09
MnO	0.86	0.86	0.58	0.55	0.69	1.10	0.69	0.72	0.78	0.59	0.61	0.69	0.65	1.23	1.74	2.07	2.24	2.09
TiO ₂	0.08	0.10	0.09	0.12	0.11	0.11	0.06	0.04	0.05	0.04	0.11	0.10	0.13	0.14	0.13	0.14	0.14	0.11
Total	100.92	100.78	100.89	100.31	100.47	100.23	100.98	100.61	100.65	100.75	100.32	100.44	100.19	100.95	100.61	100.80	100.75	100.83
<i>Formula on the basis of 24 oxygen</i>																		
TSi	5.85	5.95	6.10	6.04	6.11	6.13	5.92	5.87	5.95	5.95	5.95	6.00	5.97	5.95	5.98	5.92	5.97	5.93
Fe ²⁺	4.20	4.13	4.19	4.21	4.14	4.18	4.14	4.16	4.12	4.19	4.23	4.18	4.21	4.23	4.16	4.21	4.13	4.19
Al ^{VI}	3.58	3.66	3.69	3.70	3.72	3.72	3.72	3.70	3.75	3.76	3.72	3.81	3.82	3.72	3.74	3.63	3.73	3.68
Ca	1.21	1.34	1.23	1.35	1.31	1.28	1.19	1.18	1.23	1.22	1.30	1.25	1.26	1.28	1.31	1.33	1.29	1.35
Mg	0.90	0.75	0.70	0.61	0.62	0.54	0.85	0.86	0.80	0.74	0.65	0.66	0.62	0.59	0.54	0.53	0.53	0.49
Mn	0.12	0.11	0.08	0.07	0.09	0.15	0.09	0.10	0.10	0.08	0.08	0.09	0.09	0.17	0.24	0.28	0.30	0.28
TAl	0.15	0.05	0.00	0.00	0.00	0.00	0.08	0.13	0.05	0.05	0.05	0.00	0.03	0.06	0.02	0.08	0.03	0.07
Ti	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01
<i>end-member compositions</i>																		
Alm	65.45	65.18	67.65	67.47	67.19	68.01	65.95	66.08	65.91	67.28	67.45	67.59	68.16	67.54	66.64	66.37	66.14	66.35
Gross	18.80	21.19	19.81	21.59	21.23	20.80	19.04	18.80	19.62	19.56	20.78	20.24	20.36	20.31	20.94	20.93	20.57	21.39
Pyrope	13.95	11.81	11.23	9.77	10.08	8.75	13.56	13.59	12.80	11.85	10.44	10.65	10.06	9.46	8.63	8.35	8.46	7.82
Spess	1.80	1.80	1.24	1.18	1.50	2.43	1.45	1.53	1.67	1.27	1.30	1.51	1.42	2.64	3.77	4.36	4.83	4.44
Uvaro	0.00	0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.03	0.02	0.01	0.05	0.02	0.00	0.00	0.00

Table 3. continued

Sample	GR7.1	GR7.2	GR7.3	GR7.4	GR7.5	GR7.6	GR7.7	GR7.8	GR7.9	GR7.10	GR7.11	GR7.12	GR7.13	GR7.14	GR7.15	GR7.16	GR7.17	GR7.18
SiO₂	36.70	36.62	36.92	36.28	36.12	36.53	36.67	36.11	36.24	36.40	36.26	36.50	36.23	36.37	36.03	36.03	36.23	36.71
FeO	32.46	32.26	31.98	31.80	32.03	32.52	32.91	33.54	32.22	33.87	33.27	33.44	33.78	33.74	33.38	33.15	33.25	33.35
Al₂O₃	20.10	20.18	20.09	20.98	20.72	19.82	19.99	19.62	20.51	19.94	19.91	19.81	19.75	20.09	19.51	19.50	19.33	19.77
CaO	6.06	6.68	7.31	7.30	7.12	7.31	7.58	6.87	7.86	6.93	7.41	7.08	6.97	7.24	6.89	7.38	7.51	7.22
MgO	3.59	3.34	3.18	2.85	2.80	2.86	2.69	2.67	2.40	2.31	2.15	2.25	2.19	2.10	2.14	2.03	1.97	1.89
MnO	0.97	0.89	1.03	0.88	0.86	0.76	0.63	0.66	0.65	0.78	0.79	0.79	0.86	0.98	0.95	1.02	1.26	1.49
TiO₂	0.00	0.06	0.07	0.09	0.06	0.08	0.09	0.07	0.14	0.12	0.13	0.10	0.14	0.10	0.11	0.14	0.14	0.08
Total	99.87	100.03	100.58	100.17	99.72	99.88	100.55	99.55	100.01	100.34	99.92	99.97	99.92	100.62	99.02	99.26	99.68	100.51
<i>Formula on the basis of 24 oxygen</i>																		
TSi	5.86	5.84	5.86	5.78	5.79	5.85	5.84	5.82	5.80	5.83	5.83	5.87	5.84	5.82	5.86	5.85	5.86	5.89
Fe²⁺	4.34	4.30	4.25	4.24	4.29	4.36	4.38	4.52	4.31	4.54	4.48	4.50	4.55	4.51	4.54	4.50	4.50	4.47
Al^{VI}	3.64	3.63	3.61	3.71	3.70	3.59	3.59	3.55	3.66	3.60	3.61	3.62	3.59	3.60	3.60	3.57	3.54	3.62
Ca	1.04	1.14	1.24	1.25	1.22	1.26	1.29	1.19	1.35	1.19	1.28	1.22	1.20	1.24	1.20	1.28	1.30	1.24
Mg	0.86	0.79	0.75	0.68	0.67	0.68	0.64	0.64	0.57	0.55	0.52	0.54	0.53	0.50	0.52	0.49	0.48	0.45
Mn	0.13	0.12	0.14	0.12	0.12	0.10	0.08	0.09	0.09	0.11	0.11	0.11	0.12	0.13	0.13	0.14	0.17	0.20
TAl	0.14	0.16	0.14	0.22	0.21	0.15	0.16	0.18	0.20	0.17	0.17	0.13	0.16	0.18	0.14	0.16	0.14	0.11
Ti	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.01
<i>end-member compositions</i>																		
Alm	68.20	67.67	66.55	67.49	68.11	68.09	68.50	70.21	68.23	71.08	70.18	70.66	71.16	70.64	71.04	70.14	69.76	70.27
Gross	16.29	17.92	19.49	19.86	19.41	19.63	20.21	18.39	21.29	18.62	20.03	19.16	18.80	19.41	18.78	19.99	20.16	19.44
Pyrope	13.44	12.49	11.80	10.78	10.63	10.67	9.97	9.95	9.06	8.65	8.10	8.49	8.21	7.86	8.13	7.67	7.37	7.09
Spess	2.06	1.89	2.17	1.88	1.86	1.61	1.32	1.41	1.39	1.65	1.69	1.69	1.83	2.08	2.06	2.19	2.68	3.17
Uvaro	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.03	0.04