







<b>Mount</b>	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1
<b>Sample</b>	295-311	295-311	295-311	295-311	295-311	295-311	295-311	295-311	295-311	295-311	295-311	295-311
<b>Type</b>	2	2	2	2	1	1	1	1	1	1	1	1
<b>Comment</b>	Magmatic	Magmatic	Magmatic	Magmatic	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.
<b>Analyses #</b>	7	8	9	10	11	12	13	14	15	16	17	18
<b>wt.% Oxide</b>												
SnO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TiO2	0.00	0.00	0.00	0.00	0.16	0.12	0.08	0.20	0.14	0.16	0.24	0.25
SiO2	37.16	37.12	36.65	36.79	36.25	36.28	36.09	36.08	36.18	36.25	36.31	36.35
Y2O3	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Fe2O3	0.16	0.20	0.23	0.00	0.30	0.33	0.14	0.00	0.00	0.00	0.00	0.00
Cr2O3	0.09	0.06	0.08	0.06	0.10	0.11	0.08	0.12	0.11	0.08	0.08	0.10
V2O3	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Al2O3	21.12	21.05	20.74	21.03	20.41	20.30	20.19	20.08	20.08	20.37	20.09	20.15
ZnO	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
FeO	32.15	32.28	33.79	33.91	20.51	22.46	14.83	15.70	16.62	16.75	13.08	13.36
MnO	0.90	0.96	1.25	1.30	16.86	14.76	23.45	22.14	20.81	20.60	22.50	22.30
CaO	0.91	0.85	0.88	0.89	1.49	1.68	1.81	1.76	1.93	1.88	3.56	3.34
MgO	6.03	5.90	4.53	4.53	2.35	2.21	1.33	1.59	1.80	1.92	1.79	1.85
H2O	0.28	0.24	0.22	0.25	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.02	0.00
Total#	98.80	98.67	98.35	98.77	98.53	98.25	98.02	97.67	97.68	98.03	97.66	97.69
O=F	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	0.00	0.00	0.00	-0.01	0.00
Total	98.80	98.67	98.35	98.77	98.53	98.25	98.01	97.67	97.68	98.03	97.65	97.69
<b>apfu</b>												
<b>Group T</b>												
Si4+	2.963	2.968	2.971	2.966	2.976	2.992	2.997	3.000	3.000	2.996	3.000	3.000
Al3+	0.000	0.000	0.000	0.000	0.010	0.008	0.000	0.000	0.000	0.004	0.000	0.000
Zn2+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
H/4+	0.037	0.032	0.030	0.034	0.014	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Total T	3.000	3.000	3.000	3.000	3.000	3.000	2.997	3.000	3.000	3.000	3.000	3.000
<b>Group Y</b>												
Sn4+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ti4+	0.000	0.000	0.000	0.000	0.010	0.008	0.005	0.013	0.009	0.010	0.015	0.016
Si4+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.005	0.000	0.003	0.006
Fe3+	0.010	0.012	0.014	0.000	0.019	0.020	0.009	0.000	0.000	0.000	0.000	0.000
Cr3+	0.006	0.004	0.005	0.004	0.007	0.007	0.005	0.008	0.007	0.005	0.005	0.006
V3+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Al3+	1.985	1.984	1.981	1.999	1.965	1.965	1.976	1.969	1.965	1.981	1.959	1.964
Fe2+	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.007	0.013	0.004	0.017	0.009
Mg2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Y	2.000	2.000	2.000	2.003	2.000	2.000	2.000	2.000	2.000	2.000	1.999	2.000
<b>Group X</b>												
Y3+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Fe2+	2.144	2.159	2.291	2.287	1.409	1.549	1.025	1.086	1.141	1.154	0.888	0.915
Mn2+	0.061	0.065	0.086	0.089	1.173	1.031	1.649	1.560	1.464	1.442	1.576	1.562
Ca2+	0.078	0.072	0.076	0.077	0.131	0.148	0.161	0.157	0.172	0.167	0.316	0.296
Mg2+	0.717	0.704	0.547	0.545	0.288	0.272	0.165	0.197	0.223	0.237	0.220	0.227
Total X	3.000	3.000	3.000	2.998	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
<b>Group W</b>												
F-	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.000	0.000	0.006	0.000
O2-	12.000	12.000	12.000	12.000	12.000	12.000	11.989	12.000	12.000	12.000	11.995	12.000
Total	12	12	12	12	12	12	12	12	12	12	12	12
<b>Endmember de</b>												
Cryolithionite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yafsoanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bitikleite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dzhuluite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Usturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elbrusite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hutcheonite	0.0	0.0	0.0	0.0	0.5	0.4	0.0	0.0	0.0	0.2	0.0	0.0
Kimzeyite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irnarassite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schorlomite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kerimasite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Toturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Menzerite-(Y)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Katoite	1.2	1.1	1.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Majorite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Morimotoite	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.9	0.4	1.5	0.9
Pyrope	23.9	23.5	18.2	18.2	9.6	9.1	5.5	6.6	7.4	7.9	7.3	7.6
Grossular	0.6	0.6	0.6	1.5	2.2	3.2	4.2	4.1	4.0	4.6	8.5	8.7
Spessartine	2.0	2.2	2.9	3.0	39.1	34.4	55.0	52.0	48.8	48.1	52.5	52.1
Almandine	71.5	72.0	76.3	76.2	47.0	51.6	34.2	35.8	38.0	38.5	29.6	29.9
Eringaite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goldmanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Momoiite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Knorringite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uvarovite	0.3	0.2	0.2	0.0	0.3	0.4	0.2	0.4	0.4	0.3	0.3	0.3
Andradite	0.5	0.6	0.7	0.0	0.9	1.0	0.4	0.0	0.0	0.0	0.0	0.0
Blythite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schaferite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	99.9	100.0	100.0	99.9	99.6	99.5	99.9	99.7	99.4

Mount	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1
Sample	295-311	295-311	295-311	295-311	295-311	295-311	295-311	295-311	295-311	295-312	295-312
Type	1	1	1	1	1	1	1	1	1	2	2
Comment	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Magmatic	Magmatic
Analyses #	20	21	22	23	24	25	26	27	28	29	30
wt.% Oxide											
SnO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TiO2	0.11	0.21	0.20	0.07	0.13	0.17	0.19	0.10	0.07	0.00	0.00
SiO2	36.29	36.26	36.02	36.02	36.08	36.15	36.21	36.27	36.33	37.12	37.10
Y2O3	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Fe2O3	0.19	0.00	0.06	0.11	0.00	0.36	0.00	0.00	0.10	0.36	0.22
Cr2O3	0.06	0.09	0.09	0.08	0.09	0.07	0.10	0.09	0.08	0.07	0.06
V2O3	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Al2O3	20.32	20.12	20.33	20.19	20.03	20.26	20.33	20.38	20.43	20.89	20.91
ZnO	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
FeO	13.68	16.11	16.23	15.91	15.66	20.38	20.79	21.75	21.62	31.44	31.40
MnO	21.54	21.19	21.06	21.93	22.30	16.31	16.18	14.94	15.26	0.88	0.88
CaO	3.56	2.28	2.17	1.94	2.12	1.99	1.70	1.76	1.68	0.94	1.01
MgO	1.93	1.57	1.63	1.42	1.26	2.22	2.25	2.43	2.40	6.30	6.16
H2O	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.18	0.11
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total#	97.67	97.81	97.78	97.67	97.67	97.92	97.75	97.71	97.97	98.17	97.86
O=F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	97.67	97.81	97.78	97.67	97.67	97.92	97.75	97.71	97.97	98.17	97.86
<b>apfu</b>											
Group T											
Si4+	2.997	3.000	2.989	2.999	3.000	2.988	2.997	2.998	2.997	2.975	2.986
Al3+	0.004	0.000	0.011	0.001	0.000	0.010	0.003	0.002	0.003	0.000	0.000
Zn2+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
H/4+	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.025	0.014
Total T	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
Group Y											
Sn4+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ti4+	0.007	0.013	0.012	0.005	0.008	0.010	0.012	0.006	0.005	0.000	0.000
Si4+	0.000	0.009	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000
Fe3+	0.012	0.000	0.004	0.007	0.000	0.022	0.000	0.000	0.006	0.022	0.013
Cr3+	0.004	0.006	0.006	0.005	0.006	0.005	0.007	0.006	0.005	0.004	0.004
V3+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Al3+	1.974	1.968	1.977	1.980	1.968	1.963	1.980	1.984	1.983	1.974	1.983
Fe2+	0.003	0.004	0.001	0.003	0.012	0.000	0.002	0.004	0.001	0.000	0.000
Mg2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Y	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
Group X											
Y3+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Fe2+	0.941	1.114	1.126	1.104	1.079	1.409	1.438	1.499	1.490	2.108	2.113
Mn2+	1.506	1.490	1.480	1.546	1.574	1.142	1.134	1.046	1.066	0.060	0.060
Ca2+	0.315	0.202	0.193	0.173	0.189	0.176	0.151	0.156	0.148	0.080	0.087
Mg2+	0.238	0.194	0.202	0.176	0.157	0.273	0.278	0.299	0.296	0.752	0.739
Total X	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
Group W											
F-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
O2-	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000
Total	12	12	12	12	12	12	12	12	12	12	12
<b>Endmember de</b>											
Cryolithionite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yafsoanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bitikleite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dzhuluite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Usturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elbrusite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hutcheonite	0.2	0.0	0.6	0.1	0.0	0.5	0.1	0.1	0.2	0.0	0.0
Kimzeyite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irinarassite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schorlomite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kerimasite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Toturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Menzerite-(Y)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Katoite	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.8	0.5
Majorite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Morimotoite	0.3	0.4	0.1	0.3	0.8	0.0	0.2	0.4	0.1	0.0	0.0
Pyrope	7.9	6.5	6.7	5.9	5.2	9.1	9.3	10.0	9.8	25.1	24.6
Grossular	9.2	6.1	5.3	4.8	4.7	4.0	4.4	4.4	4.1	0.5	1.6
Spessartine	50.2	49.7	49.3	51.5	52.5	38.1	37.8	34.9	35.5	2.0	2.0
Almandine	31.4	36.2	37.5	36.8	36.0	47.0	47.6	50.0	49.7	70.2	70.4
Eringaite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goldmanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Momoiite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Knorringite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uvarovite	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.2
Andradite	0.6	0.0	0.2	0.3	0.0	1.1	0.0	0.0	0.3	1.1	0.7
Blythite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schaferite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	99.1	100.0	100.0	99.5	100.0	99.6	100.0	100.0	100.0	100.0





Mount	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1
<b>Sample</b>	295-73	295-73	295-73	295-73	295-73	295-73	295-73	295-73	295-73	295-73	295-73
<b>Type</b>	1	1	1	1	1	1	1	1	1	1	1
<b>Comment</b>	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.
<b>Analyses #</b>	8	9	10	11	12	13	14	15	17	18	19
<b>wt.% Oxide</b>											
SnO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TiO2	0.13	0.21	0.00	0.07	0.11	0.17	0.20	0.21	0.15	0.14	0.16
SiO2	36.18	36.25	36.45	36.44	36.17	36.09	36.43	36.46	36.57	36.60	36.43
Y2O3	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Fe2O3	0.00	0.03	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00
Cr2O3	0.07	0.04	0.05	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.10
V2O3	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Al2O3	20.44	20.45	20.71	20.51	20.39	20.49	20.41	20.30	20.45	20.50	20.47
ZnO	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
FeO	18.97	14.98	16.71	15.37	14.90	13.72	14.58	17.44	14.48	14.46	13.73
MnO	20.11	23.79	21.67	23.37	23.65	22.87	22.06	18.38	20.99	21.30	22.56
CaO	1.37	1.54	1.62	1.59	1.80	3.90	3.84	3.99	3.58	3.46	3.43
MgO	1.18	1.40	1.67	1.31	1.23	0.89	0.97	1.29	1.90	1.87	1.53
H2O	0.00	0.00	0.09	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total#	98.44	98.67	98.97	98.73	98.34	98.32	98.57	98.14	98.20	98.41	98.40
O=F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	98.44	98.67	98.97	98.73	98.34	98.32	98.57	98.14	98.20	98.41	98.40
<b>apfu</b>											
Group T											
Si4+	2.998	2.991	2.987	3.000	2.996	2.979	3.000	3.000	3.000	3.000	2.995
Al3+	0.002	0.009	0.000	0.000	0.005	0.010	0.000	0.000	0.000	0.000	0.005
Zn2+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
H/4+	0.000	0.000	0.013	0.000	0.000	0.011	0.000	0.000	0.000	0.000	0.000
Total T	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
Group Y											
Sn4+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ti4+	0.008	0.013	0.000	0.005	0.007	0.010	0.012	0.013	0.010	0.009	0.010
Si4+	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.008	0.004	0.001	0.000
Fe3+	0.000	0.002	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.000
Cr3+	0.004	0.003	0.003	0.005	0.005	0.005	0.005	0.006	0.005	0.005	0.006
V3+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Al3+	1.994	1.979	2.001	1.993	1.985	1.983	1.982	1.974	1.980	1.981	1.979
Fe2+	0.000	0.004	0.000	0.000	0.003	0.000	0.001	0.000	0.002	0.004	0.005
Mg2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Y	2.006	2.000	2.004	2.007	2.000	2.000	2.000	2.001	2.000	2.000	2.000
Group X											
Y3+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Fe2+	1.314	1.030	1.145	1.060	1.030	0.947	1.003	1.203	0.993	0.988	0.939
Mn2+	1.411	1.662	1.504	1.632	1.659	1.599	1.539	1.285	1.460	1.479	1.571
Ca2+	0.122	0.136	0.142	0.141	0.159	0.345	0.339	0.353	0.315	0.304	0.302
Mg2+	0.146	0.172	0.204	0.161	0.152	0.109	0.119	0.158	0.232	0.229	0.187
Total X	2.994	3.000	2.996	2.993	3.000	3.000	3.000	2.999	3.000	3.000	3.000
Group W											
F-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
O2-	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000
Total	12	12	12	12	12	12	12	12	12	12	12
<b>Endmember de</b>											
Cryolithionite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yafsoanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bitikleite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dzhuluite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Usturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elbrusite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hutcheonite	0.0	0.5	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.0	0.2
Kimzeyite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irinarassite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schorlomite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kerimasite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Toturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Menzerite-(Y)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Katoite	0.0	0.0	0.3	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Majorite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Morimotoite	0.0	0.3	0.0	0.0	0.2	0.0	0.1	0.0	0.2	0.4	0.5
Pyrope	4.9	5.7	6.8	5.4	5.1	3.6	4.0	5.3	7.7	7.6	6.2
Grossular	4.0	3.5	4.5	4.6	4.6	10.3	10.4	11.5	10.0	9.5	9.0
Spessartine	47.0	55.4	50.1	54.4	55.3	53.3	51.3	42.8	48.7	49.3	52.4
Almandine	43.8	34.3	38.2	35.3	34.3	31.6	33.4	39.1	32.5	32.6	31.3
Eringaite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goldmanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Momoiite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Knorringite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uvarovite	0.1	0.1	0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Andradite	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Blythite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schaferite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	99.8	100.0	99.9	99.8	100.0	100.0	99.4	99.0	99.5	99.7	100.0



Mount	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1
Sample	295-73	295-73	295-323	295-323	295-323	295-323	295-323	295-323	295-323	295-323	295-323
Type	1	1	1	1	1	1	1	1	1	1	1
Comment	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.
<b>Analyses #</b>	20	21	22	23	24	25	27	28	34	35	36
<b>wt.% Oxide</b>											
SnO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TiO2	0.17	0.16	0.23	0.19	0.11	0.19	0.06	0.11	0.19	0.19	0.21
SiO2	36.35	36.29	36.52	36.24	36.41	35.93	36.32	36.26	35.87	35.99	36.11
Y2O3	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Fe2O3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr2O3	0.10	0.10	0.08	0.08	0.10	0.10	0.09	0.09	0.08	0.10	0.06
V2O3	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Al2O3	20.53	20.30	20.25	20.32	20.39	20.37	20.41	20.40	20.28	20.25	20.26
ZnO	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
FeO	13.47	18.21	18.37	19.85	19.74	20.16	21.89	22.30	15.61	17.89	17.62
MnO	22.50	19.77	18.84	17.50	17.49	17.83	15.42	15.11	23.44	20.44	20.77
CaO	3.52	2.07	2.28	2.09	2.23	1.80	2.39	2.26	1.19	1.41	1.32
MgO	1.48	1.41	1.46	1.69	1.67	1.31	1.48	1.63	1.21	1.45	1.43
H2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Total#	98.10	98.30	98.04	97.95	98.13	97.68	98.06	98.15	97.88	97.72	97.77
O=F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00
Total	98.10	98.30	98.04	97.95	98.13	97.68	98.06	98.15	97.88	97.72	97.77
<b>apfu</b>											
Group T											
Si4+	2.997	3.000	3.000	3.000	3.000	2.994	3.000	2.998	2.990	2.999	3.000
Al3+	0.003	0.000	0.000	0.000	0.000	0.006	0.000	0.002	0.009	0.002	0.000
Zn2+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
H/4+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total T	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	2.999	3.000	3.000
Group Y											
Sn4+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ti4+	0.010	0.010	0.014	0.012	0.007	0.012	0.004	0.007	0.012	0.012	0.013
Si4+	0.000	0.003	0.026	0.003	0.009	0.000	0.007	0.000	0.000	0.000	0.008
Fe3+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr3+	0.006	0.006	0.005	0.005	0.007	0.006	0.006	0.006	0.005	0.007	0.004
V3+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Al3+	1.991	1.979	1.977	1.984	1.986	1.995	1.992	1.986	1.984	1.987	1.988
Fe2+	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000
Mg2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Y	2.008	2.000	2.022	2.003	2.009	2.013	2.009	2.000	2.001	2.005	2.013
Group X											
Y3+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Fe2+	0.929	1.257	1.273	1.375	1.365	1.405	1.516	1.540	1.088	1.247	1.227
Mn2+	1.571	1.385	1.322	1.228	1.224	1.258	1.081	1.058	1.655	1.442	1.465
Ca2+	0.311	0.183	0.203	0.186	0.197	0.161	0.212	0.200	0.107	0.126	0.118
Mg2+	0.181	0.174	0.181	0.208	0.205	0.163	0.182	0.201	0.150	0.180	0.177
Total X	2.992	3.000	2.978	2.997	2.991	2.987	2.992	3.000	3.000	2.995	2.987
Group W											
F-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000
O2-	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	11.996	12.000	12.000
Total	12	12	12	12	12	12	12	12	12	12	12
<b>Endmember de</b>											
Cryolithionite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yafsoanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bitikleite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dzhuluite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Usturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elbrusite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hutcheonite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.1	0.0
Kimzeyite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irinarassite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schorlomite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kerimasite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Toturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Menzerite-(Y)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Katoite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Majorite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Morimotoite	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Pyrope	6.0	5.8	6.0	6.9	6.8	5.4	6.1	6.7	5.0	6.0	5.9
Grossular	10.2	5.5	6.3	5.9	6.2	5.4	7.0	6.1	2.7	3.7	3.8
Spessartine	52.4	46.2	44.1	40.9	40.8	41.9	36.0	35.3	55.2	48.1	48.8
Almandine	31.0	41.4	42.4	45.4	45.5	46.8	50.5	51.2	36.3	41.6	40.9
Eringaite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goldmanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Momoiite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Knorringtonite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uvarovite	0.2	0.3	0.2	0.3	0.3	0.0	0.1	0.3	0.3	0.3	0.1
Andradite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blythite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schaferite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	99.7	99.5	99.1	99.4	99.6	99.6	99.7	99.9	99.9	99.8	99.6

Mount	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT1	GRT2	GRT2	GRT2	GRT2	GRT2
Sample	295-323	295-323	295-323	295-323	295-323	295-323	295-323	295-511	295-511	295-511	295-511	295-511
Type	1	1	1	1	1	1	1	2	2	2	2	2
Comment	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic
Analyses #	41	42	43	44	49	52	59	1	2	3	4	5
wt.% Oxide												
SnO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n.a	n.a	n.a	n.a	n.a
TiO2	0.15	0.09	0.17	0.22	0.24	0.14	0.08	0.02	0.01	0.03	0.00	0.01
SiO2	36.11	36.20	36.25	36.26	35.90	36.03	36.10	38.37	38.24	38.29	38.33	38.57
Y2O3	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.09	0.11	0.09	0.01	0.06
Fe2O3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.17	0.14	0.26	0.00
Cr2O3	0.08	0.08	0.07	0.11	0.09	0.11	0.09	0.00	0.02	0.03	0.01	0.02
V2O3	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.02	0.02	0.01	0.01	0.00
Al2O3	20.24	20.31	20.28	20.25	20.23	20.22	20.28	21.74	21.71	21.65	21.71	21.61
ZnO	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.00	0.03	0.03	0.04	0.04
FeO	17.38	17.65	15.33	15.29	16.83	17.45	21.54	33.88	33.91	34.00	32.62	32.47
MnO	19.40	19.37	21.95	22.19	21.51	20.89	16.59	1.05	1.01	1.06	0.84	0.86
CaO	2.34	2.18	2.59	2.19	1.41	1.55	1.62	1.06	1.07	1.03	0.99	1.03
MgO	1.80	1.77	1.29	1.30	1.34	1.28	1.38	5.55	5.58	5.43	6.47	6.38
H2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.27	0.14	0.23	0.00
F	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total#	97.51	97.66	97.92	97.83	97.54	97.68	97.68	102.01	102.16	101.92	101.51	101.06
O=F	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	97.51	97.66	97.92	97.82	97.54	97.68	97.68	102.01	102.16	101.92	101.51	101.06
<b>apfu</b>												
Group T												
Si4+	3.000	3.000	3.000	3.000	2.998	3.000	3.000	2.980	2.964	2.980	2.971	2.998
Al3+	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Zn2+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.000	0.002	0.002	0.002	0.002
H/4+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.035	0.018	0.029	0.000
Total T	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.001	3.000	3.002	3.000
Group Y												
Sn4+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	n.a	n.a	n.a	n.a	n.a
Ti4+	0.009	0.005	0.010	0.013	0.015	0.009	0.005	0.001	0.001	0.002	0.000	0.001
Si4+	0.000	0.004	0.007	0.014	0.000	0.005	0.009	0.000	0.000	0.000	0.000	0.009
Fe3+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.010	0.008	0.015	0.000
Cr3+	0.006	0.005	0.005	0.007	0.006	0.007	0.006	0.000	0.001	0.002	0.001	0.001
V3+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.001	0.001	0.000	0.001	0.000
Al3+	1.981	1.986	1.983	1.984	1.989	1.988	1.992	1.989	1.983	1.986	1.983	1.985
Fe2+	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.003	0.002	0.000	0.000
Mg2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
Total Y	2.000	2.000	2.005	2.018	2.010	2.009	2.012	2.000	1.999	2.000	2.000	2.000
Group X												
Y3+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.004	0.004	0.004	0.001	0.003
Fe2+	1.203	1.225	1.063	1.063	1.176	1.217	1.501	2.197	2.195	2.211	2.114	2.117
Mn2+	1.365	1.361	1.542	1.562	1.522	1.476	1.171	0.069	0.066	0.070	0.055	0.057
Ca2+	0.209	0.194	0.230	0.195	0.126	0.139	0.145	0.088	0.089	0.086	0.082	0.086
Mg2+	0.223	0.219	0.160	0.161	0.167	0.159	0.171	0.642	0.645	0.630	0.747	0.738
Total X	3.000	3.000	2.995	2.980	2.990	2.991	2.988	3.000	3.000	3.000	2.998	3.000
Group W												
F-	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
O2-	12.000	12.000	12.000	11.991	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000
Total	12	12	12	12	12	12	12	12	12	12	12	12
<b>Endmember de</b>												
Cryolithionite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yafsoanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bitikleite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dzhuluite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Usturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elbrusite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hutcheonite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kimzeyite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irinarassite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schorlomite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kerimasite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Toturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Menzerite-(Y)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Katoite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	0.5	0.9	0.0
Majorite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Morimotoite	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0
Pyrope	7.4	7.3	5.3	5.4	5.6	5.3	5.7	21.4	21.5	21.0	24.9	24.2
Grossular	6.2	6.2	7.4	6.3	4.0	4.3	4.8	2.1	1.3	1.7	1.1	2.7
Spessartine	45.5	45.4	51.4	52.1	50.7	49.2	39.0	2.3	2.1	2.3	1.8	1.9
Almandine	39.9	40.4	35.0	35.4	39.2	40.6	50.0	73.2	73.2	73.7	70.5	70.6
Eringaite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goldmanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Momoiite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Knorringite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uvarovite	0.3	0.3	0.2	0.2	0.2	0.3	0.0	0.0	0.1	0.0	0.0	0.1
Andradite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.4	0.8	0.0
Blythite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schaferite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	99.8	99.6	99.4	99.3	99.7	99.7	99.6	99.9	99.8	99.9	99.9	99.7

Mount	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2
<b>Sample</b>	295-511	295-511	295-511	295-511	295-511	295-511	295-513	295-513	295-513	295-513	295-513	295-513	295-513	295-513
<b>Type</b>	2	2	2	2	2	2	2	2	2	2	2	2	2	2
<b>Comment</b>	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic
<b>Analyses #</b>	6	7	8	9	10	11	2	3	4	5	6	7	8	9
<b>wt.% Oxide</b>														
SnO2	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
TiO2	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01
SiO2	38.36	38.30	38.19	38.52	38.34	38.30	38.25	38.50	38.41	37.85	37.66	37.80	37.53	38.41
Y2O3	0.06	0.03	0.07	0.00	0.09	0.03	0.03	0.04	0.14	0.09	0.07	0.09	0.00	0.05
Fe2O3	0.05	0.09	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr2O3	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.03	0.02	0.01	0.00	0.01	0.04
V2O3	0.01	0.00	0.02	0.03	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.02
Al2O3	21.73	21.73	21.21	21.63	21.21	21.14	21.54	21.56	21.31	21.49	21.52	21.56	21.45	21.57
ZnO	0.01	0.03	0.01	0.02	0.04	0.05	0.06	0.05	0.01	0.03	0.04	0.02	0.04	0.02
FeO	32.97	33.00	34.11	32.77	33.72	33.55	33.28	33.34	33.51	32.42	34.56	34.60	34.96	31.99
MnO	0.92	0.94	1.09	0.89	1.20	1.19	0.94	0.97	1.05	0.84	1.20	1.23	1.40	0.74
CaO	1.06	1.05	1.22	1.05	0.73	0.74	0.82	0.89	1.00	0.96	0.84	0.84	0.77	0.96
MgO	6.06	6.05	4.98	6.21	5.31	5.36	5.36	5.32	4.82	5.36	4.31	4.28	3.94	6.07
H2O	0.11	0.15	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total#	101.36	101.38	100.92	101.42	100.67	100.37	100.27	100.68	100.29	99.07	100.21	100.44	100.11	99.89
O=F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	101.36	101.38	100.92	101.42	100.67	100.37	100.27	100.68	100.29	99.07	100.20	100.44	100.11	99.89
<b>apfu</b>														
<b>Group T</b>														
Si4+	2.986	2.980	3.000	2.997	2.997	2.997	2.997	2.997	3.000	2.998	2.998	2.999	2.998	2.999
Al3+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Zn2+	0.001	0.002	0.001	0.001	0.003	0.003	0.004	0.003	0.000	0.002	0.002	0.001	0.002	0.001
H/4+	0.014	0.020	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total T	3.001	3.002	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
<b>Group Y</b>														
Sn4+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Ti4+	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001
Si4+	0.000	0.000	0.012	0.000	0.029	0.033	0.027	0.035	0.048	0.026	0.005	0.009	0.005	0.032
Fe3+	0.003	0.005	0.000	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr3+	0.001	0.000	0.001	0.000	0.001	0.001	0.000	0.001	0.002	0.001	0.001	0.000	0.001	0.002
V3+	0.001	0.000	0.001	0.002	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.001
Al3+	1.993	1.993	1.971	1.983	1.974	1.971	2.007	2.002	1.993	2.023	2.022	2.022	2.023	2.006
Fe2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg2+	0.002	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Y	1.999	1.999	2.000	2.001	2.004	2.004	2.035	2.038	2.044	2.052	2.028	2.031	2.029	2.042
<b>Group X</b>														
Y3+	0.003	0.001	0.003	0.000	0.004	0.001	0.001	0.002	0.006	0.004	0.003	0.004	0.000	0.002
Fe2+	2.147	2.147	2.250	2.132	2.226	2.220	2.201	2.196	2.224	2.167	2.304	2.303	2.339	2.111
Mn2+	0.061	0.062	0.073	0.058	0.080	0.080	0.063	0.065	0.071	0.057	0.081	0.083	0.095	0.050
Ca2+	0.088	0.087	0.103	0.088	0.062	0.063	0.069	0.075	0.085	0.083	0.072	0.072	0.066	0.081
Mg2+	0.702	0.702	0.572	0.720	0.625	0.632	0.632	0.625	0.570	0.639	0.512	0.508	0.470	0.714
Total X	3.000	3.000	3.000	2.999	2.996	2.996	2.965	2.963	2.956	2.948	2.972	2.969	2.971	2.958
<b>Group W</b>														
F-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
O2-	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000
Total	12	12	12	12	12	12	12	12	12	12	12	12	12	12
<b>Endmember de</b>														
Cryolithionite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yafsoanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bitikleite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dzhuluite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Usturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elbrusite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hutcheonite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kimzeyite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irinarassite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schorlomite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kerimasite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Toturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Menzerite-(Y)	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Katoite	0.4	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Majorite	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Morimotoite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pyrope	23.4	23.4	17.8	24.0	20.8	21.1	21.1	20.8	19.0	21.3	17.1	16.9	15.7	23.8
Grossular	2.3	2.0	3.4	2.1	1.0	0.8	2.3	2.5	2.8	2.7	2.4	2.4	2.2	2.7
Spessartine	2.0	2.1	2.4	1.9	2.6	2.6	2.1	2.2	2.4	1.9	2.7	2.8	3.2	1.7
Almandine	71.5	71.6	75.0	71.1	74.2	74.0	73.4	73.2	74.1	72.2	76.8	76.8	78.0	70.4
Eringaite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goldmanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Momoiite	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Knorringite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uvarovite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Andradite	0.2	0.3	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blythite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schaferite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	99.9	99.9	100.0	98.7	98.6	98.8	98.7	98.3	98.2	99.0	98.8	99.0	98.5

<b>Mount</b>	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2
<b>Sample</b>	295-513	295-513	295-513	295-513	295-513	295-513	295-110	295-61	295-61	295-61	295-61	295-61
<b>Type</b>	2	2	2	2	2	2	2	1	1	1	1	1
<b>Comment</b>	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic	Magmatic	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.
<b>Analyses #</b>	10	11	12	13	14	15	1	7	8	9	10	12
<b>wt.% Oxide</b>												
SnO2	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
TiO2	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.10	0.08	0.09	0.03	0.17
SiO2	38.33	38.47	38.00	38.23	38.01	37.76	38.20	37.37	37.34	37.30	37.56	37.26
Y2O3	0.05	0.09	0.15	0.04	0.07	0.00	0.03	0.08	0.02	0.02	0.05	0.06
Fe2O3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr2O3	0.01	0.00	0.05	0.02	0.03	0.00	0.00	0.03	0.02	0.02	0.03	0.03
V2O3	0.01	0.01	0.03	0.03	0.02	0.01	0.02	0.02	0.03	0.03	0.01	0.02
Al2O3	21.65	21.34	21.50	21.20	21.29	20.92	21.00	21.18	20.62	20.60	21.19	20.97
ZnO	0.03	0.01	0.05	0.00	0.02	0.02	0.02	0.01	0.01	0.03	0.01	0.01
FeO	32.84	32.88	32.53	34.14	33.90	25.39	32.87	21.23	21.82	20.49	22.55	16.48
MnO	0.78	0.98	0.88	0.88	0.85	10.80	1.22	16.88	16.44	17.83	15.31	22.01
CaO	0.99	0.81	1.17	0.90	0.91	3.59	0.62	1.92	1.80	1.87	1.79	1.26
MgO	5.82	5.36	5.20	4.63	4.68	1.92	5.25	1.68	1.93	1.77	1.95	1.57
H2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.00
Total#	100.49	99.95	99.56	100.09	99.82	100.40	99.22	100.51	100.10	100.05	100.48	99.85
O=F	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
Total	100.49	99.95	99.56	100.09	99.80	100.40	99.22	100.50	100.10	100.05	100.48	99.85
<b>apfu</b>												
<b>Group T</b>												
Si4+	2.998	2.999	2.997	3.000	2.999	2.999	2.999	3.000	3.000	2.998	3.000	2.999
Al3+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Zn2+	0.002	0.001	0.003	0.000	0.001	0.001	0.001	0.000	0.001	0.002	0.000	0.001
H/4+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total T	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
<b>Group Y</b>												
Sn4+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Ti4+	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.006	0.005	0.005	0.002	0.010
Si4+	0.015	0.052	0.029	0.044	0.034	0.037	0.057	0.017	0.026	0.028	0.027	0.033
Fe3+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr3+	0.000	0.000	0.003	0.001	0.002	0.000	0.000	0.002	0.001	0.001	0.002	0.002
V3+	0.001	0.001	0.002	0.002	0.001	0.000	0.001	0.001	0.002	0.002	0.001	0.001
Al3+	2.006	1.995	2.017	1.990	2.003	1.982	1.980	2.014	1.969	1.970	2.013	2.011
Fe2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Y	2.022	2.047	2.052	2.038	2.041	2.020	2.039	2.040	2.003	2.006	2.045	2.057
<b>Group X</b>												
Y3+	0.002	0.004	0.006	0.002	0.003	0.000	0.001	0.003	0.001	0.001	0.002	0.003
Fe2+	2.159	2.181	2.166	2.274	2.263	1.707	2.199	1.433	1.479	1.390	1.520	1.122
Mn2+	0.052	0.066	0.059	0.060	0.058	0.735	0.083	1.154	1.128	1.225	1.045	1.517
Ca2+	0.083	0.069	0.100	0.077	0.078	0.309	0.053	0.166	0.156	0.163	0.154	0.110
Mg2+	0.682	0.634	0.617	0.550	0.556	0.230	0.626	0.203	0.233	0.214	0.234	0.191
Total X	2.978	2.953	2.948	2.962	2.957	2.981	2.961	2.959	2.997	2.994	2.955	2.943
<b>Group W</b>												
F-	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.006	0.000	0.000	0.000	0.000
O2-	12.000	12.000	12.000	12.000	11.993	12.000	12.000	11.994	12.000	12.000	12.000	12.000
Total	12	12	12	12	12	12	12	12	12	12	12	12
<b>Endmember de</b>												
Cryolithionite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yafsoanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bitikleite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dzhuluite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Usturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elbrusite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hutcheonite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kimzeyite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irinarassite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schorlomite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kerimasite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Toturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Menzerite-(Y)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Katoite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Majorite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Morimotoite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pyrope	22.7	21.1	20.6	18.3	18.5	7.7	20.9	6.7	7.8	7.1	7.8	6.4
Grossular	2.8	2.3	3.3	2.6	2.6	10.1	1.8	5.5	3.9	4.2	5.1	3.7
Spessartine	1.7	2.2	2.0	2.0	1.9	24.5	2.8	38.5	37.5	40.8	34.8	50.6
Almandine	72.0	72.7	72.2	75.8	75.4	56.9	73.3	47.8	49.3	46.3	50.7	37.4
Eringaite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goldmanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Momoiite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Knorringite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uvarovite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Andradite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blythite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schaferite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	99.2	98.3	98.1	98.7	98.5	99.1	98.7	98.5	98.6	98.6	98.4	98.0

Mount	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2
Sample	295-61	295-61	295-61	295-61	295-61	295-429	295-435	295-435	283-484	283-484	283-484
Type	1	1	1	1	1	1	1	1	1	1	1
Comment	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Calcosilicate	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Al Met. Cont.	Calcosilicate
Analyses #	13	14	17	18	19	2	4	5	6	7	8
<b>wt.% Oxide</b>											
SnO2	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
TiO2	0.15	0.12	0.10	0.12	0.06	0.22	0.06	0.06	0.11	0.00	0.09
SiO2	37.48	37.53	37.08	37.11	37.25	37.38	37.26	37.47	37.06	36.94	36.38
Y2O3	0.00	0.02	0.02	0.04	0.25	0.05	0.11	0.00	0.03	0.01	0.00
Fe2O3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr2O3	0.03	0.02	0.01	0.02	0.00	0.02	0.01	0.00	0.02	0.00	0.00
V2O3	0.03	0.03	0.01	0.02	0.01	0.02	0.02	0.01	0.02	0.01	0.00
Al2O3	21.07	20.85	20.61	20.47	20.82	19.93	20.82	20.48	21.16	20.40	20.76
ZnO	0.03	0.02	0.03	0.00	0.02	0.01	0.00	0.03	0.03	0.01	0.04
FeO	16.45	15.78	16.40	20.12	21.52	11.81	15.45	15.64	18.21	27.87	14.83
MnO	22.36	23.02	22.55	19.06	17.01	20.72	24.01	23.32	20.41	13.84	18.93
CaO	1.28	1.63	2.28	1.47	1.76	7.51	1.37	1.41	1.59	0.22	5.99
MgO	1.55	1.29	0.83	1.36	1.23	0.55	0.97	1.04	1.47	0.68	0.79
H2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total#	100.44	100.30	99.91	99.77	99.92	98.21	100.07	99.45	100.12	99.97	97.82
O=F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.44	100.30	99.91	99.77	99.92	98.21	100.07	99.45	100.12	99.97	97.82
<b>apfu</b>											
Group T											
Si4+	2.998	2.999	2.998	3.000	2.999	3.000	3.000	2.998	2.998	3.000	2.998
Al3+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Zn2+	0.002	0.001	0.002	0.000	0.001	0.001	0.000	0.002	0.002	0.001	0.003
H/4+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total T	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
Group Y											
Sn4+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Ti4+	0.009	0.008	0.006	0.007	0.004	0.013	0.004	0.004	0.007	0.000	0.006
Si4+	0.034	0.045	0.029	0.031	0.039	0.071	0.039	0.074	0.010	0.038	0.004
Fe3+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr3+	0.002	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.000
V3+	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.000	0.000
Al3+	2.009	1.994	1.983	1.970	2.001	1.930	2.002	1.979	2.024	1.978	2.018
Fe2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Y	2.056	2.049	2.019	2.011	2.044	2.017	2.045	2.058	2.043	2.016	2.027
Group X											
Y3+	0.000	0.001	0.001	0.002	0.011	0.002	0.005	0.000	0.001	0.000	0.000
Fe2+	1.113	1.070	1.120	1.375	1.467	0.811	1.054	1.072	1.236	1.917	1.023
Mn2+	1.532	1.582	1.560	1.319	1.175	1.442	1.658	1.619	1.403	0.964	1.323
Ca2+	0.111	0.142	0.200	0.129	0.153	0.661	0.119	0.124	0.139	0.019	0.530
Mg2+	0.187	0.156	0.101	0.165	0.149	0.067	0.118	0.127	0.177	0.083	0.097
Total X	2.944	2.951	2.981	2.990	2.956	2.983	2.955	2.942	2.957	2.984	2.973
Group W											
F-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
O2-	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000
Total	12	12	12	12	12	12	12	12	12	12	12
<b>Endmember de</b>											
Cryolithionite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yafsoanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bitikleite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dzhuluite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Usturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elbrusite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hutcheonite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kimzeyite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irinarassite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schorlomite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kerimasite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Toturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Menzerite-(Y)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Katoite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Majorite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Morimotoite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pyrope	6.2	5.2	3.4	5.5	5.0	2.2	3.9	4.2	5.9	2.8	3.2
Grossular	3.7	4.7	6.5	3.3	5.1	19.2	4.0	4.1	4.6	0.1	17.7
Spessartine	51.1	52.7	52.0	43.9	39.2	48.0	55.3	54.0	46.8	32.1	44.1
Almandine	37.1	35.7	37.3	45.8	48.9	27.0	35.1	35.7	41.2	63.9	34.1
Eringaite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goldmanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Momoiite	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Knorringite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uvarovite	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Andradite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blythite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schaferite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	98.1	98.3	99.2	98.6	98.2	96.6	98.3	98.1	98.5	98.9	99.1

<b>Mount</b>	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2	GRT2
<b>Sample</b>	295-414	295-414	295-519	295-519	295-519	295-519	295-519	295-519	295-519	295-519	295-519	295-519
<b>Type</b>	1	1	1	1	1	1	1	1	2	2	2	2
<b>Comment</b>	Al Met. Cont.	Calcosilicate	Al Met. Cont.	Calcosilicate	Calcosilicate	Calcosilicate	Calcosilicate	Calcosilicate	Magmatic	Magmatic	Magmatic	Magmatic
<b>Analyses #</b>	1	2	3	4	6	7	8	9	10	11	12	13
<b>wt.% Oxide</b>												
SnO2	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
TiO2	0.05	0.22	0.10	0.18	0.81	0.19	0.11	0.05	0.01	0.01	0.00	0.01
SiO2	37.07	37.39	37.50	37.62	37.61	37.39	37.82	36.81	37.99	38.40	37.66	38.01
Y2O3	0.11	0.02	0.01	0.02	0.00	0.00	0.01	0.02	0.04	0.08	0.01	0.08
Fe2O3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr2O3	0.01	0.01	0.00	0.02	0.04	0.02	0.00	0.00	0.01	0.00	0.00	0.01
V2O3	0.01	0.03	0.01	0.01	0.09	0.01	0.02	0.00	0.01	0.00	0.01	0.01
Al2O3	20.82	20.64	20.55	20.32	19.75	20.97	20.85	20.75	21.53	21.31	20.96	21.23
ZnO	0.00	0.00	0.00	0.01	0.01	0.00	0.02	0.02	0.06	0.00	0.04	0.00
FeO	15.49	11.69	16.76	7.56	6.06	9.95	14.15	33.16	32.83	33.18	35.10	33.14
MnO	24.20	25.42	22.28	23.67	20.60	22.09	17.93	8.41	0.78	0.80	1.15	0.84
CaO	1.26	4.19	1.70	8.89	13.09	8.55	8.78	0.23	0.87	0.86	0.97	0.98
MgO	0.92	0.57	1.17	0.31	0.22	0.36	0.55	0.85	5.55	5.23	3.62	5.09
H2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total#	99.93	100.17	100.07	98.63	98.27	99.52	100.24	100.30	99.67	99.87	99.52	99.40
O=F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	99.93	100.17	100.07	98.63	98.27	99.52	100.24	100.30	99.67	99.87	99.52	99.40
<b>apfu</b>												
Group T												
Si4+	3.000	3.000	3.000	3.000	2.999	3.000	2.999	2.999	2.997	3.000	2.998	3.000
Al3+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Zn2+	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.004	0.000	0.002	0.000
H/4+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total T	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
Group Y												
Sn4+	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Ti4+	0.003	0.014	0.006	0.011	0.050	0.011	0.006	0.003	0.000	0.000	0.000	0.001
Si4+	0.030	0.035	0.053	0.068	0.056	0.021	0.034	0.015	0.019	0.051	0.041	0.036
Fe3+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr3+	0.001	0.001	0.000	0.001	0.002	0.001	0.000	0.000	0.001	0.000	0.000	0.001
V3+	0.001	0.002	0.000	0.001	0.006	0.000	0.001	0.000	0.001	0.000	0.001	0.001
Al3+	2.005	1.974	1.972	1.953	1.891	1.997	1.971	2.003	2.014	1.995	1.993	1.999
Fe2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg2+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Y	2.039	2.025	2.032	2.034	2.005	2.031	2.013	2.021	2.035	2.046	2.034	2.037
Group X												
Y3+	0.005	0.001	0.000	0.001	0.000	0.000	0.000	0.001	0.002	0.003	0.000	0.003
Fe2+	1.058	0.793	1.142	0.516	0.411	0.673	0.949	2.271	2.180	2.204	2.368	2.214
Mn2+	1.675	1.748	1.537	1.635	1.418	1.512	1.218	0.583	0.053	0.054	0.078	0.057
Ca2+	0.110	0.364	0.149	0.777	1.139	0.740	0.755	0.020	0.074	0.073	0.084	0.084
Mg2+	0.112	0.069	0.142	0.038	0.027	0.044	0.066	0.104	0.657	0.619	0.435	0.606
Total X	2.961	2.975	2.968	2.966	2.995	2.969	2.987	2.979	2.965	2.954	2.966	2.963
Group W												
F-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
O2-	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000
Total	12	12	12	12	12	12	12	12	12	12	12	12
<b>Endmember de</b>												
Cryolithionite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yafsoanite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bitikleite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dzhuluite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Usturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elbrusite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hutcheonite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kimzeyite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irinarassite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schorlomite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kerimasite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Toturite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Menzerite-(Y)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Katoite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Majorite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Morimotoite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pyrope	3.7	2.3	4.7	1.3	0.9	1.5	2.2	3.5	21.9	20.6	14.5	20.2
Grossular	3.7	11.7	4.6	24.7	33.0	24.7	24.2	0.7	2.5	2.4	2.8	2.8
Spessartine	55.8	58.3	51.2	54.5	47.0	50.4	40.5	19.4	1.8	1.8	2.6	1.9
Almandine	35.3	26.4	38.0	17.2	13.7	22.4	31.6	75.7	72.7	73.5	78.9	73.8
Eringaite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goldmanite	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Momoiite	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Knorringite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uvarovite	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Andradite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blythite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schaferite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	98.5	98.8	98.6	97.7	94.9	99.0	98.6	99.3	98.8	98.3	98.9	98.7