GSA Data Repository Item # 7513

Title of article Transition from staurolite to sillimanite zone, Rangeley Quadrangle, Maine

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see GSA Bulletin v. 85, p. 475 - 490

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TABLE 1 BIOTITES FROM SULFIDE-RICH SMALLS FALLS FORMATION, NORTH CENTRAL RUMFORD QUADRANGLE, MAINE. UPPER STAUROLITE TO LOWER SILLIMANITE ZONE. ARRANGED IN ORDER OF INCREASING Mg/Fe RATIO OF BIOTITE. ALL SPECIMENS HAVE BIOTITE + CORDIERITE + CHLORITE + MUSCOVITE + QUARTZ + PLAGIOCLASE PRESENT.

Spec #	Ru-e28a-66	Ru-e28b-66	Ru-e31-66	Ru-e26-66	Ru-e25-66	Ru-e32-66	Ru-G24-66
SiO_2	38.83	38.76	39.08	39.57	40.14	39.14	40.81
Al_2O_3	20.06	19.80	19.38	19.60	18.98	19.62	19.50
FeO	9.53	9.44	7.72	6.01	4.81	4.75	2.53
MgO	16.72	17.28	18.49	19.57	20.59	20.86	22.28
TiO_2	0.98	1.04	0.75	0.66	0.58	0.65	0.52
MnO	0.29	0.25	0.20	0.24	0.20	0.28	0.18
K_2O	7.93	8.15	8.05	8.00	8.37	8.12	8.60
Na_2O	0.22	0.21	0.21	0.23	0.24	0.22	0.23
CaO	000	000	000	000	000	000	000
H_2O	5.39	5.02	6.08	6.11	5.82	6.37	5.40
			Formula Based on 22 Oxygen				
Si^{IV}	5.583	5.560	5.617	5.634	5.710	5.568	5.681
Al^{IV}	2.417	2.440	2.383	2.366	2.290	2.432	2.319
Al <u>total</u>	3.399	3.348	3.283	3.290	3.161	3.291	3.198
Al^{VI}	0.982	0.908	0.900	0.924	0.871	0.859	0.879
Fe	1.146	1.133	0.928	0.716	0.569	0.565	0.294
Mg	3.583	3.695	3.960	4.154	4.335	4.423	4.622
Ti	0.106	0.112	0.081	0.070	0.062	0.069	0.055
Mn	0.036	0.030	0.024	0.028	0.024	0.033	0.021
Σ	5.853	5.878	5.893	5.892	5.861	5.949	5.871
K	1.455	1.491	1.475	1.454	1.508	1.474	1.528
Na	0.063	0.059	0.059	0.062	0.067	0.061	0.062
Ca	000	000	000	000	000	000	000
Σ	1.518	1.550	1.534	1.516	1.575	1.535	1.590
Mg/Fe	3.126	3.261	4.267	5.802	7.619	7.828	15.721
Mn/Fe	.031	.026	.026	.039	.042	.058	.071
Ti/Fe	.092	.099	.087	.098	.109	.122	.187
Mg/Mg+Fe	.758	.765	.810	.853	.884	.887	.940
Mn/Mn+Fe+Mg	.007	.006	.005	.006	.005	.007	.004
$Mg/\Sigma X^{VI}$	.612	.629	.672	.705	.740	.744	.787
Na/Na+K	.042	.038	.038	.041	.042	.040	.039

TABLE 2 ANALYSES OF CHLORITES. SAME INFORMATION AS IN TABLE 1.
INSUFFICIENT CHLORITE FOR ANALYSIS IN e28a AND e32.

Spec #	Ru-e28a-66	Ru-e28b-66	Ru-e31-66	Ru-e26-66	Ru-e25-66	Ru-e32-66	Ru-G24-66
SiO_2		27.02	27.00	27.26	27.87		28.45
Al_2O_3		24.27	23.59	24.03	24.07		24.44
FeO		11.94	9.88	8.40	6.41		3.22
MgO		23.70	24.38	26.19	27.66		29.79
TiO_2		0.14	0.14	0.06	0.04		0.05
MnO		0.42	0.32	0.36	0.33		0.32
H_2O		12.34	14.55	13.64	13.63		13.90
			Formula based on 28 Oxygens				
Si^{IV}		5.297	5.369	5.320	5.373		5.399
Al^{IV}		2.703	2.631	2.680	2.627		2.601
Al total		5.608	5.529	5.528	5.469		5.466
Al^{IV}		2.905	2.898	2.848	2.842		2.865
Fe		1.957	1.643	1.371	1.033		0.511
Mg		6.926	7.229	7.621	7.950		8.427
Ti		0.021	0.021	0.008	0.007		0.007
Mn		0.070	0.054	0.060	0.054		0.052
Σ		11.879	11.845	11.908	11.886		11.862
Mg/Fe		3.539	4.400	5.559	7.696		16.491
Mn/Fe		.036	.033	.044	.052		.102
Ti/Fe		.011	.013	.006	.007		.014
Mg/Mg+Fe		.780	.815	.848	.885		.943
$Mg/\Sigma X^{VI}$		.583	.610	.640	.669		.710
Mn/Mn+Fe+Mg		.008	.006	.007	.006		.006

TABLE 3. ANALYSES OF CORDIERITE. SAME INFORMATION AS IN TABLE 1.

Spec #	Ru-e28a-66	Ru-e28b-66	Ru-e31-66	Ru-e26-66	Ru-e25-66	Ru-e32-66	Ru-G24-66
SiO_2	49.75	49.73	50.25	50.38	50.64	50.34	50.12
Al_2O_3	33.72	33.57	33.66	34.13	34.28	33.71	33.93
FeO	3.29	3.41	2.87	2.46	2.03	1.82	0.90
MgO	9.65	9.98	10.50	11.07	11.53	11.21	11.44
TiO_2	0.02	0.01	000	000	0.01	0.10	0.005
MnO	0.76	0.79	0.50	0.61	0.52	0.56	0.55
K_2O	0.01	000	000	000	000	000	0000
Na_2O	1.05	1.02	0.82	0.54	0.66	0.84	1.04
CaO	---	0.02	0.03	0.02	---	0.01	0.03
H_2O	1.67	1.49	1.36	0.79	0.27	1.41	2.00
			Formula based on 18 Oxygens				
Si	5.031	5.023	5.045	5.018	5.011	5.035	5.025
Al	4.019	3.996	3.982	4.007	3.997	3.974	4.009
Σ	9.050	9.019	9.027	9.025	9.008	9.009	9.034
Fe	0.278	0.288	0.241	0.205	0.168	0.152	0.076
Mg	1.455	1.502	1.571	1.643	1.700	1.672	1.710
Ti	0.002	0.001	000	000	0.001	0.008	000
Mn	0.065	0.067	0.043	0.052	0.044	0.047	0.047
K	0.002	000	000	000	000	000	0000
Na	0.206	0.200	0.160	0.105	0.126	0.164	0.202
Ca	---	0.002	0.004	0.002	---	0.001	0.003
Σ of All Cations	11.058	11.079	11.046	11.032	11.047	11.053	11.072
Mg/Fe	5.234	5.215	6.519	8.015	10.119	11.00	22.50
Mn/Fe	.234	.233	.178	.254	.262	.309	.618
Ca/Fe	---	.007	.017	.010	---	.007	.040
Mg/Mg+Fe	.840	.839	.867	.889	.910	.917	.957
Mn/Mn+Fe+Mg	.036	.036	.023	.027	.023	.025	.026
Mg/Mg+Fe+Mn+Ca	.809	.808	.847	.865	.889	.893	.933
Na/Na+K	0.99	1.000	1.000	1.000	1.000	1.000	1.000