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Distribution of titanium between coexisting muscovite and biotite in pelitic schists from northwestern Maine

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Table 2A. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Upper Staurolite Zone, Rangeley. All specimens with staurolite. Data from Guidotti (1973, 1974, and unpublished).

Table 2B. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe of biotite and K_D , Mg/Fe, Musc/Bio. Transition Zone, Rangeley. Data from Guidotti (1973, 1974). All specimens with sillimanite and/or staurolite.

Table 2C. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Lower Sillimanite Zone, Rangeley. Data from Guidotti (1973, 1974). All specimens with sillimanite and/or staurolite.

Table 2D. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Upper Staurolite to Lower Sillimanite Zone, N. Rumford Quadrangle. All specimens are from the Small's Falls Formation and contain high-Al assemblages.

Table 2E. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Lower Sillimanite Zone, Oquossoc. All specimens with sillimanite and/or staurolite. Data from Guidotti (1970, 1973, 1974).

Table 2F. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Upper Sillimanite Zone, Oquossoc. All specimens with sillimanite. Data from Guidotti (1970, 1973, 1974). (* - specimens with high biotite Mg/Fe ratio)

Table 2G. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Upper Sillimanite Zone, Bryant Pond Region. Data from Evans and Guidotti (1966). (* - specimens with high Biotite Mg/Fe ratio)

Table 2H. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Upper Sillimanite Zone, Bryant Pond-Rumford Regions. All specimens from high-Al varieties of the Small's Falls Formation.

Table 2I. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. K-feldspar + Sillimanite Zone, Bryant Pond Quad. Data from Evans and Guidotti (1966). All specimens with sillimanite. (* - specimens with high Biotite Mg/Fe ratio)

Table 2A. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Upper Staurolite Zone, Rangeley. All specimens with staurolite. Data from Guidotti (1973, 1974, and unpublished).

Spec. #	*Wt% Ti-Mu	Wt% Ti-Bio	$\frac{Ti}{Ti}$ $\frac{Mu}{Bio}$	Mg/Fe Bio	Mg/Fe Mu	$\frac{Mg/Fe}{Mg/Fe}$ $\frac{Musc}{Bio}$
Ra-c50-66	.23	.96	.239	.995	1.143	1.149
Ra-a97-66	.22	.98	.224	.771	1.000	1.296
Ra-a2-66	.19	1.02	.186	.900	1.125	1.250
Ra-a14-66	.20	.95	.210	.832	1.143	1.374
Ra-a36-66	.20	.90	.222	.843	.800	.949
Ra-a8-66	.17	.93	.183	.891	.800	.899
Ra-a28-66	.24	1.03	.233	.787	.875	1.112
Ra-a33-66	.20	1.07	.196	.964	1.286	1.334
Ra-a52-66	.19	.92	.206	.878	1.000	1.139
Ra-a61-66	.21	.95	.221	.844	.975	1.155
Ra-a67-66	.19	.95	.200	.820	1.040	1.268
Ra-a69-66	.25	.95	.263	.709	1.007	1.420
Ra-a98-66	.30	1.07	.280	.860	1.095	1.273
Ra-b9-66	.23	.94	.245	.847	1.092	1.289
Ra-a29-66	.26	1.05	.248	.846	1.250	1.477
M-762-64A	.23	.98	.235	.834	1.286	1.542
M-798-64	.21	.93	.226	.866	1.286	1.485
Ra-c84-66	.20	.96	.208	.973	1.333	1.370
Average	.22	.97	.224	.859	1.085	1.265

*The analytical error for data in this and all subsequent tables is about two percent for elements constituting more than two percent of a given specimen. For elements analyzed together (Fe, Mg, Ti) the relative amounts have a similar error even for lower concentrations.

Table 2B. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe of biotite and K_D , Mg/Fe, Musc/Bio. Transition Zone, Rangeley. Data from Guidotti (1973)(1974). All specimens with sillimanite and/or staurolite.

Spec. #	Wt% Ti-Mu	Wt% Ti-Bio	Ti		Mg/Fe Bio	Mg/Fe Mu	Mg/Fe	
			Mu	Bio			Musc	Bio
Ra-a93-66	.25	.97	.258	.700	1.125	1.607		
Ra-b48-66	.28	1.11	.252	.927	1.375	1.483		
Ra-b42-66	.25	1.15	.217	.839	1.125	1.341		
Ra-c35-66	.25	1.11	.225	.822	1.000	1.216		
Ra-a96-66	.26	.93	.279	.719	1.111	1.545		
Ra-a59-66	.22	1.03	.213	.845	1.125	1.331		
Ra-b51-66	.31	1.05	.295	.934	1.375	1.472		
Ra-a58-66	.31	1.00	.310	1.024	1.136	1.109		
Ra-a72-66	.25	1.01	.247	.887	1.000	1.127		
Ra-a88-66	.26	1.03	.252	.988	.900	.911		
Ra-c71-66	.21	.92	.228	.876	.905	1.033		
Ra-c72-66	.25	.94	.266	.924	1.060	1.147		
Average	.26	1.02	.255	.874	1.103	1.277		

Table 2C. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Lower Sillimanite Zone, Rangeley. Data from Guidotti (1973)(1974). All specimens with sillimanite and/or staurolite.

Spec. #	Wt% Ti-Mu	Wt% Ti-Bio	Ti Mu		Mg/Fe Bio	Mg/Fe Mu	Mg/Fe Mus	
			Ti Bio	Ti Mu			Mg/Fe Bio	Mg/Fe Mus
Ra-b56-66	.34	1.20	.283	.701	.701	1.125	1.605	
Ra-c63-66	.29	1.05	.276	.858	.858	1.111	1.295	
Ra-b93-66	.28	1.09	.257	.836	.836	1.428	1.708	
Ra-a95-66	.26	1.10	.236	.796	.796	1.125	1.413	
Ra-b86-66	.36	1.21	.297	.859	.859	1.222	1.423	
Ra-b4-66	.29	1.10	.264	.796	.796	1.375	1.727	
Ra-b95-66	.28	.98	.286	.846	.846	1.500	1.773	
Ra-b41-66	.31	1.10	.282	.782	.782	-	-	
Ra-b90-66	.35	1.02	.343	.835	.835	1.171	1.402	
Ra-a92-66	.28	.95	.295	.909	.909	1.206	1.327	
Average	.30	1.08	.282	.822	.822	1.251	1.519	

Table 2D. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Upper Staurolite to Lower Sillimanite Zone, N. Rumford Quadrangle. All specimens are from the Small's Falls Formation and contain high-Al assemblages.

Spec. #	Wt% Ti-Mu	Wt% Ti-Bio	Ti Mu		Mg/Fe Bio	Mg/Fe Mu	Mg/Fe Mus	
			Ti	Bio			Mg/Fe Bio	Mg/Fe Mus
Ru-e28a-66	.33	.59	.559		3.126	3.680	1.177	
Ru-e28b-66	.30	.62	.484		3.261	3.404	1.044	
Ru-d24-66	.28	.51	.549		4.018	3.870	.963	
Ru-e31-66	.38	.45	.844		4.267	4.973	1.165	
Ru-e26-66	.29	.40	.725		5.802	5.312	.916	
Ru-e25-66	.27	.35	.771		7.619	8.333	1.094	
Ru-e32-66	.31	.39	.795		7.828	-	-	
Ru-G24-66	.43	.31	1.387		15.721	15.667	.997	
Average	.32	.45	.764		6.455	6.463	1.051	

Table 2E. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Lower Sillimanite Zone, Oquossoc. All specimens with sillimanite and/or staurolite. Data from Guidotti (1970) (1973) (1974).

Spec. #	Wt% Ti-Mu	Wt% Ti-Bio	Ti Mu		Mg/Fe Mu	Mg/Fe Mus	
			Ti Bio	Mg/Fe Bio		Mg/Fe Bio	Mg/Fe Bio
O-J-50	.41	1.15	.356	.709	1.100	1.551	
O-J-65	.28	1.19	.235	.650	1.000	1.538	
O-C-38	.29	1.07	.271	.771	1.200	1.556	
O-J-67	.29	1.15	.252	.665	1.111	1.671	
O-K-1	.34	1.15	.296	.696	.889	1.277	
O-C-35	.31	1.11	.279	.692	.889	1.285	
O-C-41	.23	1.32	.174	.651	1.000	1.536	
O-C-44	.39	1.18	.330	.637	1.000	1.570	
O-J-55	.44	1.09	.404	.608	.909	1.495	
O-J-60	.28	1.17	.239	.740	1.000	1.351	
O-J-63	.25	1.07	.234	.614	1.000	1.629	
O-J-73	.34	1.16	.293	.601	1.000	1.664	
O-K-46	.30	1.13	.265	.758	1.100	1.451	
O-K-57	.25	1.16	.215	.621	1.000	1.610	
Average	.31	1.15	.274	.672	1.014	1.513	

Table 2F. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Upper Sillimanite Zone, Oquossoc. All specimens with sillimanite. Data from Guidotti (1970)(1973) (1974). (* - specimens with high biotite Mg/Fe ratio)

Spec. #	Wt% Ti-Mu	Wt% Ti-Bio	Ti Mu		Mg/Fe Mu	Mg/Fe Mus	
			Ti Bio	Mg/Fe Bio		Mg/Fe Bio	Mg/Fe Bio
O-K-31	.47	1.55	.303	.726	1.100	1.515	
O-J-20	.44	1.31	.336	.602	.909	1.510	
O-K-61	.42	1.38	.304	.787	1.300	1.652	
O-C-14	.44	1.50	.293	.752	1.222	1.625	
O-C-13	.41	1.40	.293	.712	1.100	1.545	
O-C-17	.37	1.33	.278	.619	-	-	
O-C-21	.40	1.39	.288	.741	1.100	1.484	
O-J-41	.47	1.30	.361	.752	1.000	1.330	
O-J-50	.47	1.32	.356	.765	1.200	1.569	
O-J-87	.45	1.39	.324	.766	1.111	1.450	
O-J-88	.43	1.41	.305	.637	1.000	1.570	
O-J-89	.32	1.25	.256	.731	1.000	1.368	
O-K-29	.39	1.46	.267	.581	.833	1.434	
O-K-30	.46	1.36	.338	.603	.917	1.521	
Average	.42	1.38	.307	.698	1.061	1.506	
Non Sillimanite-bearing Specimens							
O-K-9	.86*	1.22*	.705*	2.580*	3.666*	1.421*	
O-K-8	.82*	1.27*	.646*	1.619*	2.182*	1.348*	
O-J-86	.38	1.36	.270	.706	1.143	1.619	

Table 2G. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Upper Sillimanite Zone, Bryant Pond Region. Data from Evans and Guidotti (1966) (* - specimens with high Biotite Mg/Fe ratio).

Spec. #	Wt% Ti-Mu	Wt% Ti-Bio	$\frac{Ti\ Mu}{Ti\ Bio}$	Mg/Fe Bio	Mg/Fe Mu	$\frac{Mg/Fe\ Mus}{Mg/Fe\ Bio}$
Sillimanite-bearing specimens						
8	.48	1.63	.294	.735	1.167	1.588
9	.40	1.41	.284	.748	.917	1.226
10	.43	1.68	.256	.630	1.100	1.746
11	.75*	1.47*	.510*	1.585*	2.000*	1.262*
12	.45	1.50	.300	.692	.923	1.334
13	.33	1.49	.221	.630	.769	1.221
16	.42	1.32	.318	1.010	1.200	1.188
18	.48	1.64	.293	.734	1.000	1.362
19	.82*	1.50*	.547*	1.250*	1.250*	1.000*
22	.51	1.58	.322	.830	1.100	1.325
24	.25	1.09	.229	.920	.909	.988
Average (1)	.42	1.48	.280	.770	1.009	1.331
Non Sillimanite-bearing specimens						
1	.43	1.46	.294	.826	1.222	1.479
3	.46	1.56	.295	.790	1.133	1.434
4	.77*	1.48*	.520*	1.610*	1.909*	1.186*
5	.90*	1.36*	.661*	1.660*	1.846*	1.112*
6	.38	1.41	.269	.776	1.000	1.287
Average (1)	.42	1.48	.286	.797	1.118	1.400

(1) Excludes specimens with asterisks

Table 2H. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. Upper Sillimanite Zone, Bryant Pond - Rumford Regions. All specimens from high-Al varieties of the Smalls Falls Formation

Spec. #	Wt% Ti-Mu	Wt% Ti-Bio	Ti		Mg/Fe Bio	Mg/Fe Mu	Mg/Fe Mus	
			Ti	Mu			Mg/Fe Bio	Mg/Fe Mus
7/16/73	.59	1.000	.590		2.432	2.106	.866	
Ru-P18b-73	.49	.92	.533		2.807	2.293	.817	
Ru-P18a-73	.59	.89	.661		3.224	2.329	.722	
Ru-P19-73	.64	.74	.865		4.151	4.915	1.184	
Ru-G57-66	.64	.56	1.143		4.694	5.026	1.071	
Ru-P20-73	.75	.60	1.250		6.703	5.947	.887	
Average	.62	.78	.840		4.002	3.769	.924	

Table 2I. Distribution of Ti between coexisting muscovite and biotite in relation to Mg/Fe biotite and K_D , Mg/Fe, Musc/Bio. K-feldspar + Sillimanite Zone, Bryant Pond Quad. Data from Evans and Guidotti (1966). All specimens with sillimanite. (* - specimens with high Biotite Mg/Fe ratio)

Spec. #	Wt% Ti-Mu	Wt% Ti Bio	Ti Mu		Mg/Fe Bio	Mg/Fe Mu	Mg/Fe Mus	
			Ti Bio				Mg/Fe Bio	
31	.63	1.74	.362		.753	1.077		1.430
37	.44	1.56	.282		.776	1.182		1.523
41	.71	2.08	.341		.603	.917		1.520
43	.78	2.35	.332		.613	.857		1.398
51	.31	1.52	.204		.756	.929		1.229
52	.77*	1.84*	.418*		1.075*	1.600*		1.488*
53	.82*	1.90*	.432*		1.118*	1.333*		1.192*
55	.71	2.13	.333		.539	.800		1.484
60	.48	2.06	.233		.595	.714		1.200
63	.51	1.72	.296		.771	.929		1.205
65	.77	1.90	.405		.651	.857		1.316
67	.71	2.38	.298		.643	.786		1.222
68	.83*	1.77*	.469*		1.341*	1.727*		1.288*
69	.52	1.91	.272		.833	1.091		1.310
70	.52	1.89	.275		.751	.923		1.229
Average (1)	.59	1.94	.303		.690	.922		1.339

(1) Excludes specimens with asterisks