

AM-91-468

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Relationship between composition and  $d_{001}$  for chlorite

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For deposit: Table 4

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TABLE 1  
COMPOSITIONAL AND XRD DATA FOR CHLORITES. Base O<sub>10</sub>(OH)<sub>2</sub>

No	d <sub>040</sub> (Å)	Si	Al <sup>IV</sup>	Al <sup>VI</sup>	Mg	Fe <sup>2+</sup>	Fe <sup>3+</sup>	Cr	Mn	Ni	Zn	Li	Ca	Ti	Σ	References
* 1	14.182	2.622	1.378	1.316	2.847	1.533	0.222	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.080	Rule, Bailey (1987); Steinfink (1958a)
* 2	14.166	2.700	1.300	1.300	1.300	3.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Shirozu, Bailey (1965)
* 3	14.242	2.600	1.400	0.750	4.900	0.070	0.170	0.180	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Steinfink (1958b)
* 4	14.325	3.000	1.000	0.200	5.000	0.100	0.000	0.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Brown, Bailey (1963)
* 5	14.368	3.000	1.000	0.200	5.000	0.100	0.000	0.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Lister, Bailey (1967)
* 6	14.287	3.160	0.840	0.820	4.900	0.275	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	Joswig et al. (1980)
* 7	14.238	3.020	0.980	0.720	4.950	0.040	0.040	0.230	0.000	0.020	0.000	0.000	0.000	0.000	0.020	Phillips et al. (1980)
* 8	14.250	2.990	1.010	0.710	4.920	0.060	0.060	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Phillips et al. (1980)
* 9	14.290	3.550	0.450	1.170	0.760	1.200	0.000	0.000	0.010	0.000	2.500	0.000	0.000	0.000	0.360	Rule, Radke (1988)
10	14.180	3.810	0.190	3.810	0.010	0.010	0.000	0.000	0.010	0.000	0.000	0.520	0.020	0.000	1.620	Merceron et al. (1988)
11	14.311	3.170	0.830	0.770	4.820	0.170	0.180	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060	Post, Flummer (1972)
12	14.141	2.640	1.360	0.850	3.100	1.820	0.320	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Post, Flummer (1972)
13	14.159	2.690	1.310	1.550	3.470	0.860	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120	Post, Flummer (1972)
14	14.188	2.870	1.130	0.790	4.600	0.480	0.210	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Post, Flummer (1972)
15	14.130	2.769	1.231	1.298	0.415	3.477	0.463	0.000	0.015	0.000	0.000	0.000	0.030	0.020	0.300	Novak (1967)
16	14.172	2.843	1.157	0.951	0.794	3.053	0.650	0.000	0.327	0.000	0.000	0.000	0.000	0.000	0.225	Shirozu (1955)
17	14.184	2.700	1.300	1.150	4.700	0.000	0.070	0.000	0.050	0.000	0.000	0.000	0.000	0.000	0.030	Shirozu (1958)
18	14.210	2.682	1.318	1.256	4.375	0.330	0.045	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	Shirozu (1958)
** 19	14.225	2.500	1.500	1.200	2.300	1.000	1.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.400	Shirozu (1958)
** 20	14.186	3.010	0.990	0.985	1.665	0.495	0.120	0.000	0.005	2.615	0.000	0.000	0.045	0.000	0.070	De Waal (1970)
21	14.184	3.300	0.700	2.700	2.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	Eggleton, Bailey (1967)
22	14.170	3.010	0.990	2.840	1.910	0.020	0.190	0.000	0.020	0.000	0.000	0.000	0.000	0.000	1.020	Fransolet, Bourguignon (1978)
23	14.170	2.990	1.010	2.880	1.940	0.000	0.170	0.000	0.020	0.000	0.000	0.000	0.000	0.000	1.000	Fransolet, Bourguignon (1978)
24	14.140	2.550	1.450	1.405	0.775	3.880	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Jijima, Matsumoto (1982)
25	14.150	2.537	1.463	1.204	1.012	3.242	0.405	0.000	0.053	0.000	0.000	0.000	0.012	0.000	0.072	Shirozu (1978)
** 26	14.170	2.967	1.033	1.346	2.242	1.437	0.447	0.000	0.031	0.000	0.000	0.000	0.100	0.015	0.382	Shirozu (1978)
27	14.230	3.280	0.720	2.181	2.514	0.346	0.070	0.000	0.000	0.000	0.000	0.000	0.032	0.045	0.812	Shirozu (1978)
28	14.180	3.200	0.800	3.200	1.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.200	Shirozu (1978)
* 29	14.127	3.140	0.860	4.100	0.080	0.010	0.040	0.000	0.000	0.000	0.000	0.260	0.000	0.000	1.510	Alexandrova et al. (1972)
30	14.113	2.510	1.490	1.440	1.390	2.910	0.180	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.070	Zen (1960)
31	14.113	2.710	1.290	1.660	1.410	2.600	0.070	0.000	0.030	0.000	0.000	0.000	0.000	0.010	0.220	Zen (1960)
32	14.280	2.910	1.090	0.360	5.030	0.230	0.110	0.270	0.000	0.020	0.000	0.000	0.015	0.000	0.000	Lapham (1958)
33	14.213	2.970	1.030	0.980	4.430	0.170	0.250	0.000	0.000	0.070	0.000	0.000	0.000	0.000	0.100	Wiewiora (1978)

No	$d_{\text{obs}}(\text{\AA})$	Si	$\rho_{\text{Al}}$	$\text{Ca/Al}$	Mg	$\text{Fe}^{2+}$	$\text{Fe}^{3+}$	Cr	Mn	Ni	Zn	Li	Ca	Ti	$\mu$	References
34	14.150	2.260	1.740	1.330	4.420	0.000	0.030	0.190	0.000	0.000	0.000	0.000	0.000	0.000	0.030	Weiss (unpublished)
35	14.322	3.110	0.890	0.690	4.440	0.200	0.400	0.000	0.010	0.010	0.000	0.000	0.110	0.010	0.190	Weiss (unpublished)
36	14.240	2.880	1.120	0.750	4.470	0.070	0.500	0.000	0.000	0.000	0.000	0.000	0.040	0.000	0.170	Weiss (unpublished)
37	14.113	2.540	1.460	0.810	2.380	0.900	1.410	0.000	0.090	0.010	0.000	0.000	0.000	0.000	0.400	Weiss (unpublished)
38	14.221	3.010	0.990	1.000	4.120	0.340	0.300	0.000	0.010	0.000	0.000	0.000	0.040	0.010	0.180	Weiss (unpublished)
39	14.096	2.650	1.350	1.180	0.630	3.190	0.520	0.000	0.090	0.000	0.000	0.000	0.180	0.020	0.190	Weiss (unpublished)
40	14.160	2.400	1.600	1.140	4.590	0.000	0.080	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Weiss (unpublished)
41	14.100	2.200	1.800	1.670	3.970	0.000	0.170	0.120	0.000	0.000	0.000	0.000	0.000	0.000	0.070	Weiss (unpublished)
42	14.294	3.530	0.470	0.470	4.740	0.280	0.290	0.000	0.010	0.020	0.000	0.000	0.000	0.000	0.190	Weiss (unpublished)
43	14.160	2.810	1.190	1.390	0.820	3.690	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	Weiss (unpublished)
44	14.152	2.360	1.640	3.140	1.800	0.000	0.100	0.120	0.000	0.000	0.000	0.000	0.000	0.000	0.840	Weiss (unpublished)
45	14.163	3.000	1.000	0.960	3.930	0.950	0.100	0.000	0.020	0.000	0.000	0.000	0.000	0.010	0.030	Weiss (unpublished)
46	14.240	3.130	0.870	0.650	4.380	0.000	0.540	0.000	0.010	0.000	0.000	0.000	0.000	0.130	0.290	Weiss (unpublished)
47	14.120	3.090	0.910	1.480	1.185	2.540	0.280	0.000	0.000	0.000	0.000	0.000	0.045	0.015	0.470	Whittle (1986)
48	14.140	2.820	1.180	1.530	1.920	1.905	0.210	0.000	0.005	0.000	0.000	0.000	0.095	0.000	0.335	Whittle (1986)
49	14.130	2.920	1.080	1.600	1.685	2.040	0.225	0.000	0.045	0.000	0.000	0.000	0.045	0.000	0.360	Whittle (1986)
50	14.130	3.010	0.990	1.625	1.855	1.790	0.200	0.000	0.005	0.000	0.000	0.000	0.020	0.015	0.490	Whittle (1986)
51	14.150	2.885	1.115	1.435	1.740	2.235	0.250	0.000	0.000	0.000	0.000	0.000	0.015	0.005	0.320	Whittle (1986)
52	14.160	3.060	0.940	1.520	4.290	0.140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	Whittle (1986)
53	14.080	3.035	0.965	4.020	0.005	0.000	0.005	0.000	0.000	0.000	0.000	0.860	0.000	0.000	1.115	Brindley, Sillery (1956)
54	14.067	3.380	0.620	3.960	0.000	0.040	0.090	0.000	0.000	0.000	0.000	0.700	0.000	0.000	1.210	Vrublevskaya et al. (1975)
55	14.250	2.620	1.380	1.170	2.820	1.240	0.520	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	Sato, Sudo (1956)
56	14.230	2.800	1.200	1.280	4.300	0.300	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060	Shirozu (1978)
57	14.182	3.261	0.739	3.017	1.175	0.033	0.345	0.000	0.004	0.000	0.000	0.000	0.110	0.000	1.390	Hayashi, Oinuma (1964); Shirozu (1972)
58	14.160	2.620	1.380	1.000	4.720	0.390	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Ross, Kodama (1974)
59	14.280	3.400	0.600	0.840	4.600	0.280	0.110	0.020	0.000	0.070	0.000	0.000	0.000	0.000	0.120	Besnus et al. (1976)
60	14.083	2.460	1.540	1.470	1.420	3.070	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	Hazen, Finger (1988)
61	14.150	2.300	1.700	2.140	3.210	0.060	0.200	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.350	Shirozu et al. (1975)
62	14.140	2.350	1.650	1.840	3.410	0.030	0.320	0.000	0.000	0.000	0.000	0.000	0.030	0.050	0.320	Shirozu et al. (1975)
63	14.190	2.770	1.230	1.760	3.580	0.290	0.030	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.320	Shirozu et al. (1975)
# 64	14.210	2.770	1.230	1.270	4.240	0.250	0.020	0.000	0.010	0.000	0.000	0.000	0.020	0.000	0.190	Shirozu et al. (1975)
# 65	14.220	2.960	1.040	1.140	4.300	0.260	0.030	0.000	0.010	0.000	0.000	0.000	0.030	0.000	0.230	Shirozu et al. (1975)
66	14.153	2.999	1.001	2.829	2.002	0.000	0.184	0.000	0.001	0.000	0.000	0.015	0.000	0.004	0.965	Lin, Bailey (1985)

No	d <sub>010</sub> (Å)	Si	<sup>63</sup> Al	<sup>69</sup> Al	Mg	Fe <sup>2+</sup>	Fe <sup>3+</sup>	Cr	Mn	Ni	Zn	Li	Ca	Ti	■	References
67	14.210	3.261	0.739	3.017	1.175	0.003	0.345	0.000	0.004	0.000	0.000	0.000	0.110	0.000	1.346	Sudo, Sato (1966)
** 68	14.205	3.010	0.990	0.985	1.455	0.520	0.095	0.000	0.005	2.550	0.000	0.000	0.045	0.000	0.045	Hiemstra, De Waal (1968)
69	14.180	2.756	1.244	1.531	4.300	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.140	Jones (1981)
70	14.250	3.071	0.929	0.760	4.738	0.090	0.266	0.000	0.005	0.000	0.000	0.000	0.061	0.015	0.065	Jones (1981)
** 71	14.215	2.910	1.090	1.120	4.060	0.340	0.310	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.170	Nieto, Salgado (1981)
** 72	14.282	2.980	1.020	0.870	4.310	0.130	0.510	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.180	Nieto, Salgado (1981)
73	14.227	2.870	1.130	1.150	4.350	0.000	0.480	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	Nieto, Salgado (1981)
74	14.160	2.610	1.390	1.300	3.770	0.930	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	Proust (1982)
** 75	14.280	2.292	1.708	1.431	0.124	0.202	0.293	0.000	3.830	0.000	0.000	0.000	0.000	0.000	0.120	Bannister et al. (1955); Bayliss (1983)
76	14.170	2.967	1.033	1.346	2.242	1.575	0.309	0.000	0.031	0.000	0.000	0.000	0.102	0.015	0.380	Shirozu (1978)
77	14.140	2.537	1.463	1.204	1.012	3.242	0.405	0.000	0.053	0.000	0.000	0.000	0.012	0.000	0.072	Shirozu (1958, 1978)
78	14.196	3.021	0.979	3.048	1.785	0.000	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.020	1.087	Kimbara, Nagata (1974)
79	14.150	2.300	1.700	2.140	3.210	0.060	0.200	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.350	Shirozu (1980)
80	14.190	2.770	1.230	1.760	3.580	0.290	0.030	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.320	Shirozu (1980)
81	14.300	3.100	0.900	0.790	4.540	0.550	0.110	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	Shirozu (1980)
82	14.160	2.690	1.310	1.130	2.860	1.850	0.140	0.000	0.040	0.000	0.000	0.000	0.000	0.000	0.000	Shirozu (1980)
83	14.130	2.560	1.440	1.250	1.020	3.490	0.190	0.000	0.050	0.000	0.000	0.000	0.000	0.000	0.000	Shirozu (1980)
84	14.080	2.430	1.570	1.540	0.200	4.170	0.030	0.000	0.060	0.000	0.000	0.000	0.000	0.000	0.000	Shirozu (1980)
85	14.130	3.060	0.940	3.860	0.020	0.000	0.010	0.000	0.000	0.000	0.000	0.980	0.040	0.000	1.090	Shimada et al. (1985)
86	14.126	3.270	0.730	4.020	0.013	0.000	0.003	0.000	0.000	0.000	0.000	0.660	0.000	0.000	1.304	Ren et al. (1988)
87	14.239	2.700	1.300	1.300	0.600	0.200	0.000	0.000	2.600	0.000	1.300	0.000	0.000	0.000	0.000	Bayliss (1983)
88	14.170	2.910	1.090	1.230	3.310	1.140	0.160	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.160	Kodama et al. (1982)
89	14.150	2.610	1.390	0.960	0.720	2.570	0.950	0.000	0.540	0.000	0.000	0.000	0.000	0.000	0.260	Kodama et al. (1982)
90	14.190	2.890	1.110	1.410	0.770	2.010	1.040	0.000	0.090	0.000	0.000	0.000	0.000	0.000	0.580	Kodama et al. (1982)
91	14.257	3.208	0.792	0.566	4.717	0.104	0.000	0.473	0.000	0.032	0.000	0.000	0.000	0.000	0.108	Mc Cormick (1975)
92	14.330	3.057	0.943	0.474	5.213	0.030	0.060	0.266	0.027	0.000	0.000	0.000	0.000	0.000	0.000	Damodaran, Somasekar (1976)
93	14.190	2.965	1.035	0.946	4.618	0.137	0.140	0.086	0.000	0.007	0.000	0.000	0.000	0.000	0.066	Lapham (1958)
94	14.250	3.070	0.930	0.647	4.945	0.109	0.032	0.257	0.000	0.007	0.000	0.000	0.000	0.000	0.003	Lapham (1958)
95	14.350	3.191	0.809	0.202	5.175	0.114	0.036	0.507	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Lapham (1958)
96	14.320	3.107	0.893	0.190	5.101	0.160	0.000	0.602	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Lapham (1958)
* 97	14.249	3.056	0.944	0.694	4.715	0.109	0.269	0.128	0.000	0.011	0.000	0.000	0.000	0.000	0.074	Zheng, Bailey (1989)
* 98	14.261	3.056	0.944	0.694	4.715	0.109	0.269	0.128	0.000	0.011	0.000	0.000	0.000	0.000	0.074	Zheng, Bailey (1989)

Explanation: ■ = vacancies.

\* = data from structure refinements.

\*\* = Fe<sup>2+</sup>/Fe<sup>3+</sup> ratio has been corrected (see text).



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