Tables and figures

Table 1. The aenigmatite, pectolite and umbite groups of silicates [91N1].

Silicate	Composition	Group
Aenigmatite	$Na_2Fe_5TiSi_6O_{20}$	VIIID07
Serendibite	$Ca_2(Mg,Al)_6(Si,Al,B)_6O_{20}$	VIIID07
Rhoenite	$Ca_2(Fe,Mg,Ti)_6(Si,Al)_6O_{20}$	VIIID07
Welshite	$Ca_2Mg_4Be_2FeSbSi_4O_{20}$	VIIID07
Magbasite	$KBa(Mg,Fe)_6(Al,Sc)Si_6O_{20}F_2$	VIIID07
Dorrite	$CaMgFe_2Al_2SiO_{10}$	VIIID07
Krinovite	$NaMg_2CrSi_3O_{10}$	VIIID07
Makarochkinite	$(Ca,Na)_4[(Fe,Mg)_7(Fe^{3+}{}_3Ti)]Si_9Be_2AlO_{40}$	[90Y1]
Pectolite	$NaCa_2Si_3O_8(OH)$	VIIID08
Pectolite-M 2abc	$NaCa_2Si_3O_8(OH)$	VIIID08a
Serandite	$Na(Mn,Ca)_2Si_3O_8(OH)$	VIIID08
Cascandite	$Ca(Sc,Fe)Si_3O_8(OH)$	VIIID08
Foshagite	$Ca_4(SiO_3)_3(OH)_2$	VIIID08
Jusite	$(Ca,Na,K,H)(Si,Al)O_3$	VIIID08
Trabzonite	$Ca_4Si_3O_{10}\cdot 2H_2O$	VIIID08
Wollastonite	see section 8.1.4.1.1	VIIID08
Bustamite	see section 8.1.4.1.1	VIIID08
Ferrobustamite	see section 8.1.4.1.1	VIIID08
Umbite	$K_2ZrSi_3O_9\cdot H_2O$	VIIID09
Kostylevite	$K_2ZrSi_3O_9\cdot H_2O$	VIIID09
Paraumbite	$K_3Zr_2H(Si_3O_9)_2\cdot 3H_2O$	VIIID09
Labuntsovite	$(K,Na)_8(Ti,Nb)_9(SiO_3)_{16}(O,OH)_{10}\cdot H_2O$ (see section 8.1.2.5, subvolume 27I2)	VIIID09
Synthetic silicate	$K_2TiSi_3O_9\cdot H_2O$	[97D1]
Kuzmenkoite	for composition see Table 3	[01R1]

Table 2. Atomic coordinates and isotropic temperature factors.

a) Aenigmatite[1)], having triclinic structure with space group $P\bar{1}$ [71C1].

Atom	*x*	*y*	*z*	B_{eq} [Å^2]	Occupation
M1	0	0	½	0.76(7)	$Fe^{2+}_{0.89}Ti^{4+}_{0.11}$
M2	0	½	0	0.73(7)	$Fe^{2+}_{0.87}Ti^{4+}_{0.13}$
M3	0.3214(3)	0.8528(3)	0.1779(3)	0.92(5)	$Fe^{2+}_{0.95}Ti^{4+}_{0.05}$
M4	0.7655(3)	0.8199(3)	0.1511(3)	0.93(5)	$Fe^{2+}_{0.76}Ti^{4+}_{0.24}$
M5	0.0961(4)	0.9392(3)	0.0530(3)	1.01(5)	$Fe^{2+}_{0.90}Ti^{4+}_{0.10}$
M6	0.5959(3)	0.9432(3)	0.0661(3)	0.92(5)	$Fe^{2+}_{1.00}$
M7	0.9970(4)	0.7434(4)	0.2577(3)	0.70(5)	$Fe^{2+}_{0.41}Ti^{4+}_{0.59}$

Table 2a (cont.)

Atom	*x*	*y*	*z*	B_{eq} [Å^2]	Occupation
Na1	0.2089(8)	0.6298(8)	0.3893(7)	0.55(11)	Na^+
Na2	0.6607(8)	0.6117(9)	0.3741(8)	1.06(13)	Na^+
T1	0.4768(5)	0.2345(5)	0.3313(5)	0.41(8)	$Si^{4+}_{1.0}$
T2	0.9864(5)	0.2363(5)	0.3466(5)	0.39(7)	$Si^{4+}_{1.0}$
T3	0.7921(5)	0.3435(5)	0.2416(4)	0.40(7)	$Si^{4+}_{0.90}Fe^{3+}_{0.10}$
T4	0.2772(5)	0.3382(5)	0.2252(5)	0.62(8)	$Si^{4+}_{0.95}Fe^{3+}_{0.05}$
T5	0.6487(5)	0.9448(5)	0.4447(5)	0.50(8)	$Si^{4+}_{0.94}Fe^{3+}_{0.06}$
T6	0.3528(5)	0.5588(5)	0.0501(5)	0.51(8)	$Si^{4+}_{0.95}Fe^{3+}_{0.05}$
O1	0.3542(14)	0.0641(14)	0.1621(13)	0.64(21)	
O2	0.8611(14)	0.0666(13)	0.1807(12)	0.43(20)	
O3	0.5540(15)	0.9534(15)	0.2958(13)	0.75(21)	
O4	0.0151(15)	0.9258(15)	0.2670(13)	0.83(21)	
O5	0.2353(15)	0.8747(14)	0.3933(13)	0.65(20)	
O6	0.7541(15)	0.8843(14)	0.3902(13)	0.63(21)	
O7	0.4929(15)	0.1948(15)	0.4973(13)	0.75(22)	
O8	0.9575(14)	0.7755(14)	0.4871(12)	0.58(20)	
O9	0.8996(15)	0.3230(14)	0.3735(13)	0.76(20)	
O10	0.4034(15)	0.3364(15)	0.3529(13)	0.93(22)	
O11	0.6653(14)	0.1744(14)	0.0709(12)	0.57(20)	
O12	0.1570(14)	0.1688(14)	0.0612(12)	0.57(20)	
O13	0.5233(15)	0.7108(14)	0.0393(12)	0.56(20)	
O14	0.0673(13)	0.7340(13)	0.0757(12)	0.37(19)	
O15	0.2417(15)	0.6060(16)	0.1120(13)	0.89(23)	
O16	0.7510(14)	0.6018(15)	0.1275(13)	0.64(21)	
O17	0.4002(14)	0.5015(14)	0.1883(12)	0.52(20)	
O18	0.9363(16)	0.5147(16)	0.2264(14)	1.09(23)	
O19	0.1648(14)	0.3649(14)	0.3183(12)	0.62(20)	
O20	0.6731(15)	0.3626(15)	0.3366(13)	0.99(21)	

[1] Composition according to Table 3.

Table 2 (cont.)

b) Serandite[16], having triclinic lattice with space group $P\bar{1}$ [00J1].

Atom	*x*	*y*	*z*	*B* [Å^2]	Occupation
Na	0.5557(2)	0.2553(3)	0.3529(3)	1.45(6)	
Mn1	0.8531(2)	0.5945(2)	0.1349(3)	0.81(6)	0.941(9)
Mn2	0.8491(2)	0.0840(2)	0.1329(2)	0.74(6)	0.983(9)
Si1	0.2151(2)	0.4017(2)	0.3424(2)	0.53(4)	
Si2	0.2059(2)	0.9511(2)	0.3512(2)	0.49(4)	
Si3	0.4543(2)	0.7370(2)	0.1428(2)	0.50(4)	
O1	0.6643(1)	0.7943(1)	0.1138(2)	0.87(3)	
O2	0.3226(1)	0.7065(1)	0.9435(2)	0.86(3)	
O3	0.1788(1)	0.4926(1)	0.5554(2)	0.84(3)	
O4	0.1598(1)	0.8443(1)	0.5572(2)	0.87(4)	
O5	0.0614(1)	0.3912(1)	0.1671(2)	0.79(3)	
O6	0.0519(1)	0.8912(1)	0.1724(2)	0.78(3)	
O7	0.4071(1)	0.5335(1)	0.2772(2)	0.93(3)	
O8	0.3972(1)	0.9067(1)	0.2866(2)	0.92(3)	
O9	0.2593(1)	0.1888(1)	0.3931(2)	0.86(3)	
H1	0.1482(4)	0.6374(4)	0.5498(5)	2.06(10)	0.842(6)
H2	0.1518(17)	0.6872(18)	0.5483(22)	1.5(2)	0.158(6)

[16] Determined by neutron diffraction; composition $(Mn_{2.00}Ca_{0.03})NaHSi_3O_9$.

c) Cascandite, $CaScSi_3O_8(OH)$, having $C\bar{1}$ -type structure [82M1].

Atom	*x*	*y*	*z*
M1	0.0027(1)	0.6629(1)	0.9128(1)
M2	–0.0019(1)	0.6421(1)	0.4062(1)
Si1	0.2163(1)	0.0402(1)	0.0886(2)
Si2	0.2102(1)	0.0666(1)	0.5229(2)
Si3	0.2055(1)	0.8366(1)	0.7399(2)
OA1	0.1160(3)	0.4490(3)	0.8729(5)
OA2	0.1176(3)	0.4462(3)	0.4203(5)
OA3	0.1279(4)	0.6930(4)	0.2416(5)
OB1	0.1295(4)	0.1568(3)	–0.0262(5)
OB2	0.1479(4)	0.2006(3)	0.6291(5)
OB3	0.1113(4)	0.7139(3)	0.6736(5)
OC1	0.1571(4)	0.0538(4)	0.2871(5)
OC2	0.1507(4)	0.9458(3)	0.5940(5)
OC3	0.1815(4)	0.8981(3)	0.9601(5)
H	0.13	0.18	0.86
A	0.03	0.89	0.28

Table 2 (cont.)

d) $K_2TiSi_3O_9 \cdot H_2O$, having orthorhombic structure with space group $P2_12_12_1$ [97D1].

Atom	Site	*x*	*y*	*z*	*B* [Å^2]
Ti	4a	0.7417(7)	0.0450(4)	0.2890(3)	1.73(9)
K1	4a	0.7943(7)	0.4314(5)	0.5804(3)	3.9(2)
K2	4a	0.3466(6)	0.2062(5)	0.1354(3)	4.8(2)
Si1	4a	0.7729(10)	0.0410(6)	0.5472(4)	1.33(6)
Si2	4a	0.9919(9)	0.3216(6)	0.3271(5)	1.33(6)
Si3	4a	0.5758(9)	0.3566(6)	0.3296(6)	1.33(6)
O1	4a	0.9486(13)	0.1655(11)	0.3034(9)	1.82(9)
O2	4a	0.7981(14)	0.3982(9)	0.3466(7)	1.82(9)
O3	4a	0.5768(11)	0.1986(11)	0.3145(8)	1.82(9)
O4	4a	0.6276(16)	0.1600(10)	0.5743(7)	1.82(9)
O5	4a	0.5185(14)	0.9413(1)	0.2609(8)	1.82(9)
O6	4a	0.7445(13)	0.9263(9)	0.6323(7)	1.82(9)
O7	4a	0.9861(15)	0.1030(10)	0.5601(9)	1.82(9)
O8	4a	0.8993(14)	0.8914(9)	0.2685(9)	1.82(9)
O9	4a	0.7302(16)	0.9873(7)	0.4337(7)	1.82(9)
OW	4a	0.3804(16)	0.1863(10)	0.9274(7)	6.4(5)

Table 3. Crystal structures and lattice parameters at RT.

Silicate	Space group	Lattice parameters				Refs.
		a [Å]	*b* [Å]	*c* [Å]	α, β, γ	
Aenigmatite[1)]	$P\bar{1}$	10.406(13)	10.813(14)	8.926(6)	$\alpha = 104^o56(9)'$ $\beta = 96^o52(11)'$ $\gamma = 125^o19(6)'$	71C1
Serendibite[2)]	triclinic	9.513(2)	10.001(3)	8.622(3)	$\alpha = 95.85(2)^o$ $\beta = 114.70(2)^o$ $\gamma = 64.28(2)^o$	77H1
Serendibite[3)]	triclinic	8.630	9.826	10.393	$\alpha = 103.58^o$ $\beta = 106.36^o$ $\gamma = 118.21^o$	68S1
Serendibite[4)]	P1	8.630	9.532	10.019	$\alpha = 64.17^o$ $\beta = 83.94^o$ $\gamma = 65.29^o$	74B1
Rhoenite[5)]	triclinic	10.415	11.207	9.0118	$\alpha = 102^o03'$ $\beta = 100^o31'$ $\gamma = 127^o42'$	69W1
Dorrite[6)]	$P\bar{1}$ or P1	10.505(3)	10.897(3)	9.019(1)	$\alpha = 106.26(2)^o$ $\beta = 95.16(2)^o$ $\gamma = 124.75(2)^o$	88C1
Krinovite[7)]	monoclinic	19.48(4)	29.18(6)	10.25(2)	$\beta = 103(2)^o$	68O1

Table 3 (cont.)

Silicate	Space group	Lattice parameters				Refs.
		a [Å]	*b* [Å]	*c* [Å]	α, β, γ	
Krinovite[8)]	triclinic	10.22	10.67	8.80	$\alpha = 105.1^o$ $\beta = 96.6^o$ $\gamma = 125.0^o$	72M1
Krinovite[9)]	P $\bar{1}$	10.238(4)	10.642(4)	8.780(3)	$\alpha = 105.13(3)^o$ $\beta = 96.50(4)^o$ $\gamma = 125.15(3)^o$	89B1
Makarochkinite[10)]	P $\bar{1}$	10.352(5)	10.744(3)	8.864(4)	$\alpha = 105.73(3)^o$ $\beta = 96.16(3)^o$ $\gamma = 124.91(3)^o$	90Y1
Pectolite[11)]	triclinic	7.99	7.04	7.02	$\alpha = 90.52^o$ $\beta = 95.18^o$ $\gamma = 102.47^o$	56B1
Pectolite[12)]	P $\bar{1}$	7.988	7.040	7.025	$\alpha = 90.52^o$ $\beta = 95.18^o$ $\gamma = 102.47^o$	67P1
Pectolite[13)]	P $\bar{1}$	7.980(1)	7.023(1)	7.018(1)	$\alpha = 90.54(1)^o$ $\beta = 95.14(1)^o$ $\gamma = 102.55(1)^o$	77T1
Pectolite[14)] (Schizolite)	C $\bar{1}$	10.059(4)	10.880(8)	6.978(6)	$\alpha = 98.84(7)^o$ $\beta = 100.58(5)^o$ $\gamma = 82.64(5)^o$	78O1
Serandite[15)]	C $\bar{1}$	9.909(9)	10.667(9)	6.913(4)	$\alpha = 99.10(6)^o$ $\beta = 100.51(6)$ $\gamma = 82.49(7)^o$	78O1
Serandite[16)]	P $\bar{1}$	7.7185(4)	6.9064(5)	6.7624(5)	$\alpha = 90.492(5)^o$ $\beta = 90.085(5)^o$ $\gamma = 102.775(6)^o$	00J1
Serandite[17)]	P $\bar{1}$	7.7163(7)	6.9116(7)	6.7368(5)	$\alpha = 90.465(7)^o$ $\beta = 94.037(7)^o$ $\gamma = 102.844(7)^o$	00J1
Serandite[18)]	P $\bar{1}$	7.683(1)	6.889(1)	6.747(1)	$\alpha = 90.53(5)^o$ $\beta = 94.12(2)^o$ $\gamma = 102.75(2)^o$	76T1
Cascandite[19)]	P $\bar{1}$	7.529(11)	7.051(12)	6.755(9)	$\alpha = 92^o7(5)'$ $\beta = 93^o40(5)'$ $\gamma = 104^o39(5)'$	82M2
Cascandite[19)]	P $\bar{1}$	7.503(6)	7.076(6)	6.777(6)	$\alpha = 92.23(8)^o$ $\beta = 93.58(8)^o$ $\gamma = 104.49(8)^o$	82M1

Table 3 (cont.)

Silicate	Space group	Lattice parameters				Refs.
		a [Å]	*b* [Å]	*c* [Å]	α, β, γ	
Cascandite[19)]	$C\bar{1}$	9.791(8)	10.420(9)	7.076(6)	$\alpha = 98.91(8)^o$ $\beta = 102.63(8)^o$ $\gamma = 84.17(8)^o$	82M1
Foshagite[20)]	triclinic	10.32	7.36	7.94	$\alpha = 117.6^o$ $\beta = 104.5^o$ $\gamma = 90^o$	60G1
Trabzonite[21)]	$P2_1$ or $P2_1/m$	6.895(2)	20.640(3)	6.920(2)	$\beta = 98^o$	87S1, 88J1
Umbite[22)]	$P2_12_12_1$	10.208(2)	13.241(4)	7.174(1)		81I1, 93I1
Umbite[22)]	$P2_1$	10.207	13.241	7.174	$\gamma = 90.07(2)^o$	93I1
Paraumbite[23)]	orthorhombic	10.34(4)	13.29(5)	14.55(6)		81I1, 83K1
Labuntsovite[24)]	I2/m	14.18	15.48	13.70	$\gamma = 117^o$	74G1
Mn-labuntsovite[25)]	C2/m	14.369(3)	13.906(3)	7.212(1)	$\beta = 117.09(2)^o$	98G1
Labuntsovite, Ca analog[26)]	Cm	14.365(7)	13.887(7)	7.814(2)	$\beta = 117.36(5)^o$	01R1
Ca-Nb labuntsovite[27)]	C2/m	14.641(1)	14.214(1)	7.9148(2)	$\beta = 117.36(1)^o$	00Y1
$K_2TiSi_3O_9 \cdot H_2O$	$P2_12_12_1$	7.1543(7)	9.9408(11)	12.9460(10)		00Z1
$K_2TiSi_3O_9 \cdot H_2O$	$P2_12_12_1$	7.1362(2)	9.9084(3)	12.9414(4)		97D1
$K_2Zr_{0.8}Ti_{0.2}Si_3O_9 \cdot H_2O$		7.174	10.208	13.241		97D1
Kostylevite[28)]	$P2_1/a$	13.171(4)	11.717(4)	6.565(2)	$\beta = 105.26^o$	81I2, 83K2
Kuzmenkoite[29)]	Cm	14.369(3)	13.906(3)	7.812(1)	$\beta = 117.09(2)^o$	00R1

1) $(Na_{3.97}Ca_{0.03})(Fe^{2+}_{8.06}Ti^{4+}_{2.07}Fe^{3+}_{0.47}Mg^{2+}_{0.70}Mn^{2+}_{0.59}Ca^{2+}_{0.11})(Si^{4+}_{11.26}Fe^{3+}_{0.53}Al^{3+}_{0.21})O_{40}$;
2) Composition [wt %]: SiO_2 – 20.85, Al_2O_3 – 40.20, FeO – 3.48 (total iron), MgO – 12.17, CaO – 17.11, Na_2O – 0.02, TiO_2 – 0.06;
3) Natural sample. The cell is related to that of [77H1] by the transformation matrices $001/101/1\bar{1}0$;
4) Natural sample. The cell is related to that of [77H1] by the transformation matrices; 001/100/010
5) $(Na_{0.35}K_{0.22}Ca_{3.56})(Fe^{2+}_{2.55}Ti^{4+}_{1.91}Fe^{3+}_{2.34}Mg^{2+}_{5.03})(Si^{4+}_{6.54}Al^{3+}_{5.44}Fe^{3+}_{0.02})O_{40}$;
6) $(Ca_{1.92}Na_{0.07}K_{0.01})(Ca_{0.05}Mg_{1.05}Mn_{0.03}Fe^{2+}_{0.44}Ti_{0.05}Fe^{3+}_{4.38})(Fe^{3+}_{2.00}Al_{2.40}Si_{1.60})O_{20}$;
7) $NaMg_2CrSi_3O_{10}$;
8) $Na_4(Mg_2Cr_4)Si_{12}O_{40}$;
9) $Na_2Mg_4Cr_2(Si_6O_{18})O_2$;
10) $(Ca_{1.75}Na_{0.25})(Fe^{2+}_{3.80}Fe^{3+}_{1.35}Ti^{4+}_{0.06}Mg^{2+}_{0.85})O_2(Si_{4.4}Al_{0.6}Be_{1.0})O_{18}$;
11) Natural sample;
12) Composition [wt %]: CaO – 33.20, MgO – 0.12, FeO – 1.00, Na_2O – 9.01, SiO_2 – 53.80, H_2O – 2.94;
13) $HNaCa_{1.969}Mn_{0.045}Fe_{0.014}Si_3O_9$;
14) $(Mn_{1.26}Fe_{0.27}Ca_{2.42})Na_{2.15}Si_{5.99}O_{17}H_2O$;
15) $(Mn_{3.23}Fe_{0.13}Ca_{0.65})Na_{1.98}Si_{5.99}O_{17}H_2O$;
16) $(Mn_{2.0}Ca_{0.03})NaHSi_3O_9$ including H_2O by difference; X-ray data;
17) Similar composition as above; neutron diffraction data;

Table 3 (cont.)

18) $(Mn_{1.88}Ca_{0.17}Mg_{0.01})Na_{1.0}HSi_{2.97}O_9$;
19) $Ca(Sc_{0.74}Mg_{0.02}Al_{0.01}Fe^{2+}_{0.22})(Na_{0.01}Ca_{0.04}Mn_{0.10}\square_{0.85})Si_3O_{8.02}(OH)$;
20) $Ca_4(Si_3O_9)(OH)_2$;
21) $(Ca_{3.99}Na_{0.05}Mg_{0.01})Si_{3.07}O_{12}H_{3.66}$;
22) $(K_{2.02}Na_{0.02})(Zr_{0.77}Ti_{0.18}Hf_{0.01}Fe_{0.01})Si_{3.00}H_{2.38}F_{0.45}O_{9.92}$;
23) $(K_{2.92}Na_{0.03})(Zr_{2.02}Hf_{0.01}Ti_{0.10}Fe_{0.01})H_{0.94}Si_{5.89}O_{18.00}\cdot 7.34H_2O$;
24) $(K_{0.43}Na_{0.29}Ba_{0.16}Ca_{0.06}Mn_{0.09})(Ti_{0.89}Nb_{0.03}Fe_{0.05}Mg_{0.03})[Si_{1.83}Al_{0.07}O_{5.79}(OH)_{1.21}]\cdot 0.6H_2O$;
25) $Na_{0.3}K_{3.2}Ba_{0.2}Ti_{6.8}Nb_{1.0}Fe_{0.35}Mn_{1.3}Mg_{0.2}(Si_4O_{12})_4O_8\cdot nH_2O$, n = 11.3;
26) $K_{3.2}Ca_{1.2}Ba_{0.2}[Mn_{1.7}Fe_{0.1}(H_2O)_{3.6}][Ti_4(Ti_{3.8}Nb_{0.2})(O,OH)_8]\{Si_4O_{12}\}_4\cdot 6.1H_2O$;
27) $\square_4(K_{1.0}Na_{0.9})(Ca_{0.6}Na_{0.3})\{Ca_{1.4}(Nb_{2.7}Ti_{1.2}Fe_{0.05})(Nb_{2.65}Ti_{1.3}Fe_{0.05})[Si_6O_{48}](OH_{4.75}O_{3.25})\}\cdot 11H_2O$;
28) $K_{2.03}(Zr_{0.87}Ti_{0.12}Hf_{0.01})Si_{3.01}O_9\cdot H_2O$;
29) $[K_{3.2}(H_3O)_{1.5}Na_{0.35}Ba_{0.1}(Mn_{1.12}Nb_{0.28})\cdot 8.5H_2O]\{[(Ti_{3.2}Fe^{3+}_{0.8})(Ti_{3.6}Nb_{0.4})](OH_{7.6}O_{0.4})(Si_4O_{12})_4\}$.

Table 4. Refractive indices.

Silicate	n_α	n_β	n_γ	2 V°			Refs.
				Obs.	Calc.		
Aenigmatite[1)]	1.800(5)	1.813(5)	1.88(1)	52°	49°		74Y1
Rhoenite[2)]	1.808(5)		1.840(5)	>70°			69W1
Magbasite[3)]	1.597	1.609	1.615	70°		Biaxial, negative	65S1
Dorrite[4)]	1.82(1)	1.84(1)	1.86(1)	90°		Biaxial, negative	88C1
Krinovite[5)]	1.712(2)	1.725(2)	1.760(5)	61(2)°	64°	Biaxial, negative	68O1
Serendibite[6)]	1.700	1.703	1.706	81°			77H1
Trabzonite[7)]	1.632(2)	1.634(2)	1.640(2)	55(5)°	60	Biaxial, positive	87S1
Umbite[8)]	1.596(2)	1.619(2)		80°		Biaxial, negative	81I1, 83K1
Paraumbite[9)]	1.588(2)	1.601(2)	1.610(2)	82°			81I1, 83K1
Labuntsovite[11)]	1.689	1.702	1.795	41°		Biaxial, positive	55S2
Kostylevite[10)]	1.595(2)	1.598(2)	1.610(2)	48°			81I2, 83K2

1) $(Na_{4.01}K_{0.01})(Ca_{0.15}Mn_{0.21}Ti_{1.79}Fe^{2+}_{9.00}Mg_{0.05}Fe^{2+}_{0.77})(Si_{11.67}Al_{0.24}Fe^{3+}_{0.09})O_{40}$;
2) $(Na_{0.35}K_{0.22}Ca_{3.56})(Fe^{2+}_{2.55}Ti^{4+}_{1.91}Fe^{3+}_{2.34}Mg^{2+}_{5.03})(Si^{4+}_{6.54}Al^{3+}_{5.44}Fe^{3+}_{0.02})O_{40}$;
3) $KBa(Al,Sc)(Mg,Fe^{2+})_6Si_6O_{20}F_2$;
4) $(Ca_{1.92}Na_{0.07}K_{0.01})(Ca_{0.05}Mg_{1.05}Mn_{0.03}Fe^{2+}_{0.44}Ti_{0.05}Fe^{3+}_{4.38})(Fe^{3+}_{2.00}Al_{2.40}Si_{1.60})O_{20}$;
5) $NaMg_2CrSi_3O_{10}$;
6) Natural sample: SiO_2 – 20.85; Al_2O_3 – 40.20; FeO(total iron) – 3.48; MgO – 12.71; CaO – 17.11; Na_2O – 0.02; TiO_2 – 0.06 (B_2O_3 not determined);
7) $(Ca_{3.99}Na_{0.05}Mg_{0.01})Si_{3.07}O_{12}H_{3.66}$;
8) $(K_{2.02}Na_{0.02})(Zr_{0.77}Ti_{0.18}Hf_{0.01}Fe_{0.01})Si_{3.00}H_{2.38}F_{0.45}O_{9.92;}$
9) $(K_{2.92}Na_{0.03})(Zr_{2.02}Hf_{0.01}Ti_{0.10}Fe_{0.01})H_{0.94}Si_{5.89}O_{18}\cdot 7.34H_2O$;
10) $K_{2.03}(Zr_{0.87}Ti_{0.12}Hf_{0.01})Si_{3.01}O_9\cdot H_2O$;
11) Natural sample: SiO_2 – 39.59; Al_2O_3 – 1.30; Fe_2O_3 – 1.56; Nb_2O_5 – 1.45; TiO_2 – 25.49; MgO – 0.42; MnO – 2.34; CaO – 1.19; BaO – 6.61; K_2O – 7.23; K_2O – 7.23; Na_2O – 3.18; H_2O – 7.91.