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NEW MINERAL NAMES*

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Changoite*

J. Schlüter, K.-H. Klaska, G. Gebhard (1999) Changoite, $Na_2Zn(SO_4)_2 \cdot 4H_2O$, the zinc analogue of blödite, a new mineral from Sierra Gorda, Antofogasta, Chile. Neues Jahrb. Mineral. Mon., 97–103.

The mineral occurs as seams, up to 10 mm wide, of anhedral, colorless crystals coated with thenardite. Chemical analysis gave Na_2O 18.06, ZnO 20.92, SO_3 38.69, H_2O 18.99, sum 96.66 wt%, corresponding to $Na_{2.27}Zn(S_{1.88}O_8) \cdot 4.10H_2O$, ideally $Na_2Zn(SO_4)_2 \cdot 4H_2O$. Vitreous luster, white streak, H = 2–3, nonfluorescent, readily soluble in water. For the synthetic analog (PDF 19–1263), D_{meas} = 2.50, D_{calc} = 2.51 g/cm^3 for Z = 2, optically biaxial negative, 2V large, α = 1.507, β = 1.512, γ = 1.516. Monoclinic symmetry, space group $P2_1/a$; a = 11.077(2), b = 8.249(2), c = 5.532(1) Å, β = 100.18(2)° as refined from a diffractometer pattern (Cu$K\alpha$ radiation) with strongest lines of 4.550(58,210,011), 4.245(32,$2\bar{0}1$), 3.289(100,220,021), 3.262(35,211), 3.245(25,$12\bar{1}$) and 2.63(27,$40\bar{1}$).

Associated minerals are gypsum, paratacamite, and thenardite. The new name is in reference to the changos, the early former inhabitants of northern Chile. Type material is in the Mineralogical Museum of the University of Hamburg, Germany. **J.L.J.**

Coparsite*

G.L. Starova, S.V. Krivovichev, S.K. Filatov (1998) Crystal chemistry of inorganic compounds based on chains of oxocentered tetrahedra II. Crystal structure of $Cu_4O_2[(As,V)O_4]Cl$. Zeits. Kristallogr., 213, 650–653.

The mineral occurs as small black crystals in euchlorine sublimates at the Tolbachik volcano, Kamchatka, Russia. Electron microprobe analyses (not given) indicate a compositional range from $As_{0.66}V_{0.36}$ to $As_{0.52}V_{0.47}$. Single-crystal X-ray structure study (R = 0.048) of a crystal of composition $Cu_4O_2[(As_{0.54}V_{0.46})O_4]Cl$ gave orthorhombic symmetry, space group $Pbcm$, a = 5.440(1), b = 11.154(2), c = 10.333(2) Å, D_{calc} = 4.76 g/cm^3 for Z = 4.

Discussion. A complete description is not available. The mineral and name were approved under IMA proposal No. 96–064a. **J.L.J.**

Ferrorhodsite*

N.S. Rudashevsky, A.G. Mochalov, Yu.P. Menshikov, N.I. Shumskaya (1998) Ferrorhodsite $(Fe,Cu)(Rh,Pt,Ir)_2S_4$ — a new mineral. Zapiski Vseross. Mineral. Obshch., 127(5), 37–41 (in Russian).

Electron microprobe analyses of two grains gave Rh 42.4, 41.3, Ir 10.5, 6.13, Pt 1.27, 7.53, Fe 7.6, 7.08, Cu 6.42, 7.35, Ni 0.00, 0.04, Co 0.00, 0.04, S 31.0, 31.1, sum 99.19, 100.90 wt%, corresponding to $(Fe_{0.57}Cu_{0.42})_{\Sigma 0.99}(Rh_{1.72}Ir_{0.23}Pt_{0.03})_{\Sigma 1.98}S_{4.03}$ and $(Fe_{0.52}Cu_{0.48}Ni_{0.03})_{\Sigma 1.03}(Rh_{1.67}Pt_{0.16}Ir_{0.13})_{\Sigma 1.96}S_{4.01}$. The mineral occurs as irregular and equant inclusions, up to 50 × 70 μm, in isoferroplatinum. Black color, metallic luster, no cleavage, VHN_{25} = 507 (494–521), D_{calc} = 5.73 g/cm^3 for Z = 8. Gray in reflected light, isotropic. Reflectance percentages (Si standard, air) are given in 20 nm steps from 450 to 720 nm; representative values are 40.9 (450), 41.5 (480), 41.9 (520), 41.8 (560), 41.8 (600), 41.8 (640), 41.7 (680), and 41.8 (720). Indexing of the X-ray powder pattern (114 mm camera, Cu radiation) gave, by analogy with data for cuprorhodsite, cubic symmetry, space group $Fd3m$, a = 9.89(1) Å; strongest lines are 5.72(70,111), 2.99(100,311), 2.471(80,400), 1.903(70,333,511), 1.750 (90,440), 1.647(30,531), and 1.009(30,844).

The mineral, which is the Fe analog of cuprorhodsite, is associated with isoferroplatinum, laurite, osmium, hollingworthite, and $Rh_2(Fe,Ni,Cu)_4S_7$ at the Chadsky and Kondersky dunite massifs, Yakutia-Saha, Russia. Type material is in the Fersman Mineralogical Museum, Moscow. **V.A.K.**

Fluor edenite

K. Makino, Y. Yamaguchi, K. Tomita (1996) Fluor edenite from the Ishigamiyama lava dome of the Kimpo volcano, Kumamoto, southwest Japan. Ganko, 91, 419–423 (in Japanese, English abs.).

Analysis by electron microprobe, vacuum heating, and Mössbauer spectroscopy gave SiO_2 48.92, TiO_2 1.32, Al_2O_3 5.43, FeO 7.17, MnO 0.18, MgO 19.14, CaO 11.01, Na_2O 2.77, K_2O 1.03, H_2O 0.14, F 3.19, Cl 0.12, O ≡ (Cl,F) 1.37, sum 99.04 wt%, corresponding to $(Na_{0.70}K_{0.19})_{\Sigma 0.89}(Ca_{1.71}Fe_{0.19}Na_{0.08}Mn_{0.02})_{\Sigma 2.00}(Mg_{4.14}Fe^{2+}_{0.55}Fe^{3+}_{0.13}Ti_{0.15}Al_{0.03})_{\Sigma 5.00}(Si_{7.10}Al_{0.90})_{\Sigma 8.00}O_{22}[F_{1.47}(OH)_{0.13}Cl_{0.03}O_{0.37}]_{\Sigma 2.00}$. The mineral occurs as acicular crystals, several millimeters long, associated with tridymite and magnetite in cavities in andesite.

Discussion. The mineral and name have not been submitted to the CNMMN for approval. The correct name according to the 1997 IMA classification of amphiboles is fluoro-edenite. **J.L.J.**

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*Before publication, minerals marked with an asterisk were approved by the Commission on New Minerals and Mineral Names, International Mineralogical Association.

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Fullerite

G. Parthasarathy, R. Srinivasan, M. Vairamani, K. Ravikumar, A.C. Kunwar (1998) Occurrence of natural fullerenes in low grade metamorphosed Proterozoic shungite from Karelia, Russia. Geochim. Cosmochim. Acta, 62, 3541–3544.

P.R. Buseck, L.P. Galdobina, V.V. Kovaleski, N.N. Rozhkova, J.W. Valley, A.Z. Zaidenberg (1997) Shungites: the C-rich rocks of Karelia, Russia. Can. Mineral., 35, 1363–1378.

The name fullerite was originally applied to a synthetic cubic polymorph of carbon (other polymorphs are diamond, chaoite, lonsdaleite, and graphite). Natural occurrences in diverse geological environments have been reported, and the phase is considered to be a component of the carbonaceous (shungite) greenschist-facies Precambrian metamorphic rocks in the Shunga area of Karelia, Russia. The carbonaceous material is locally glassy, black, almost metallic luster, $H = 3.5$, extremely brittle, pronounced conchoidal fracture, $D_{meas} = 1.9–2.0$ g/cm^3. Mass spectrometry of carbonaceous matter extracted from shungite confirmed the presence of fullerenes. An X-ray powder pattern gave 15 lines, 10 of which are in good agreement with data for synthetic fullerenes (PDF 44–558); the indexed lines give a cubic cell with $a = 14.201(5)$ Å.

Discussion. The terms synthetic fullerite and natural fullerite appear only in the paper by Parthasarathy et al. As fullerite has not been approved by the CNMMN, the name should not be used. **J.L.J.**

Hexaferrum*

A.G. Mochalov, G.G. Dmitrenko, N.S. Rudashevsky, I.V. Zhernovsky, M.M. Boldyreva (1998) Hexaferrum (Fe,Ru), (Fe,Os), (Fe,Ir) — a new mineral. Zapiski Vseross. Mineral. Obshch., 127(5), 41–51 (in Russian).

The mineral occurs as inclusions of cubic or octahedral crystals up to 200 μm, with most 5–50 μm, in Cr spinel at the Chirynaisky dunite-harzburgite massif, Koryak Mountains, Kamchatka Peninsula, Russia. Electron microprobe analyses of 11 grains gave an average and range of Pt 0.98 (0.00–5.01), Ir 29.06 (4.44–60.07), Os 16.40 (0.00–40.40), Ru 9.60 (0.00–36.90), Rh 3.55 (0.00–4.42), Pd 0.01 (0.00–0.13), Fe 40.22 (29.40–48.10), Ni 0.55 (0.03–1.49), Cu 0.39 (0.00–2.81), Co 0.06 (0.00–0.15), sum 100.82 wt%, corresponding to $(Fe_{0.65}Ir_{0.14}Os_{0.08}Ru_{0.08}Rh_{0.03}Ni_{0.01}Cu_{0.01})_{\Sigma 1.00}$. The mineral represents a continuous solid solution of platinum-group elements in iron, and among the individual grains are ruthenian, osmian, and iridian varieties. The grains are opaque, magnetic, steel-gray color with a yellow tint, metallic luster, no cleavage, $VHN_{50} = 652$ (629–679) and 810 (741–880) for the Ru and Os varieties, respectively. In reflected light, the Ru variety is light gray to white; strongly anisotropic, with polarization colors blue-gray to muddy-brown yellow. Reflectance percentages (Si standard, air) are given in 20 nm steps from 440 to 700 nm; representative R_1 and R_2 values are 49.8, 41.9 (480), 51.1, 42.0 (560), 51.4, 42.0 (580), and 53.4, 43.0 (660). Indexing of the X-ray powder pattern (57.3 mm camera, Cu$K\alpha$ radiation) indicated hexagonal symmetry, space group $P6_3/mmc$, $a = 2.64(1)$, $c = 4.20(2)$ Å, $D_{calc} = 10.69$ g/cm^3 for $Z = 2$. Strongest lines are 2.28(50,$10\bar{1}0$), 2.10(60,0002), 2.006(100,$10\bar{1}0$), 1.549(30,$10\bar{1}2$), 1.316((30,$11\bar{2}0$), and 1.195(30,$10\bar{1}3$). For the Os-rich variety, white in reflected light, weakly anisotropic, no bireflectance, reflectance percentages 55.1 (480), 53.4 (560), 53.2 (580), and 54.7 (660); strongest X-ray lines are 2.246(50,$10\bar{1}0$), 2.087(60,0002), 1.976(100,$10\bar{1}1$), 1.528(40,$10\bar{1}2$), 1.297(60B,$11\bar{2}0$), 1.180(60B,$10\bar{1}3$), 1.100(50B,$11\bar{2}2$), and 1.083(30B,$20\bar{2}1$), $a = 2.59$, $c = 4.16$, $D_{calc} = 12.09$ g/cm^3. For the Ir variety, white to light gray in reflected light, weakly anisotropic, no bireflectance. Strongest lines of the X-ray pattern are 2.254(50B,$10\bar{1}0$), 2.103(70B,0002), 1.993(100B,$10\bar{1}1$), 1.542(40B,$10\bar{1}2$), 1.304(50B,$11\bar{2}$ 0), 1.192(40B,$10\bar{1}3$), and 1.110(40B,$11\bar{2}$ 2); $a = 2.61$, $c = 4.22$, $D_{calc} = 13.19$ g/cm^3.

The new mineral name alludes to the composition and structural symmetry; the mineral is the hexagonal polymorph of native iron. Associated minerals are iridosmine, rutheniridium, laurite, tulameenite, awaruite, native iron, copper, and zinc, oregonite, and pentlandite and other sulfides. Type material is in the Mining Museum of Saint Petersburg Mining Institute, Russia.

Discussion. For the Ru, Os, and Ir varieties, the authors use hyphenated Levinson-type names, such as hexaferrum-(Ru). These are species names, and these names were not approved by the CNMMN. **V.A.K.**

Isovite*

M.E. Generalov, V.A. Naumov, A.V. Mokhov, N.V. Trubkin (1998) Isovite $(Cr,Fe)_{23}C_6$ — a new mineral from gold- and platinum-bearing placers of the Urals. Zapiski Vseross. Mineral. Obshch., 127(5), 26–37 (in Russian, English abs.).

Electron microprobe analysis of two grains gave a mean of Cr 68.24, Fe 25.12, Ni 0.47, C 6.06, sum 99.89 wt%, corresponding to $(Cr_{16.2}Fe_{6.0}Ni_{0.1})_{\Sigma 22.3}C_{6.7}$, ideally $(Cr,Fe)_{23}C_6$. The mineral occurs as isometric or angular grains, up to 0.2 mm across. Steel-gray color, metallic luster, ferromagnetic, $VHN_{50} = 1300–1400$, $D_{calc} = 7.4$ g/cm^3 for $Z = 4$. Reflectance percentages (standard not reported) are given in 20 nm steps from 420 to 700 nm. Representative values are 46.7 (460), 42.4 (480), 43.9 (540), 43.3 (560), 47.6 (580), 47.4 (600), 46.2 (640), and 45.3 (660); other optical properties in reflected light are not described. Electron diffraction patterns indicated cubic symmetry, space group $Fm3m$, $a = 10.65(5)$ Å. Strongest lines of the powder pattern (Gandolfi camera) are 2.37(30,024), 2.16(50,224), and 2.05(100,115,333), in good agreement with data for the synthetic analog (PDF 35–783).

The mineral is associated with gold, various platinum-group minerals, cinnabar, Cr spinel, and unnamed Cr-Fe minerals, including carbides, in placers in the Isovsky district, central Urals, Russia. The new name is for the locality. Type material is in the Fersman Mineralogical Museum, Moscow.

Discussion. Corresponds to mineral IMA No. 96–039, for which the color in reflected light is stated to be white. **V.A.K.**

Schäferite*

W. Krause, G. Blass, H. Effenberger (1999) Schäferite, a new vanadium garnet from the Bellberg volcano, Eifel, Germany. Neues Jahrb. Mineral. Mon., 123–134.

The mineral occurs as orange-red, euhedral crystals, up to 0.15 mm across and showing mainly {112}, with {100} and {110} also present. The crystals and aggregates are transparent, vitreous luster, yellow streak, conchoidal fracture, no cleavage, $H = 5$, nonfluorescent, $D_{meas} = 3.40$, $D_{calc} = 3.43$ g/cm^3 for $Z = 8$. Optically isotropic, $n = 1.94$. Electron microprobe analysis gave CaO 23.44, MgO 16.46, Na_2O 4.52, MnO 0.37, FeO 0.08, SiO_2 0.12, P_2O_5 0.23, As_2O_5 0.10, V_2O_5 53.95, sum 99.27 wt%, corresponding to $(Na_{0.73}Ca_{0.09}Mg_{0.04}Mn_{0.03}Fe_{0.01})_{\Sigma 0.90}Ca_{2.00}Mg_{2.00}[(VO_4)_{2.96}(PO_4)_{0.02}(SiO_4)_{0.01}]_{\Sigma 2.99}$ for O = 12, ideally $NaCa_2Mg_2(VO_4)_3$. Single-crystal X-ray structure study indicated cubic symmetry, space group $Ia\bar{3}d$, $a = 12.427(2)$ Å as refined from a diffractometer pattern (Cu*K*α radiation) with strongest lines of 3.108(44,400), 2.779(100,420), 2.652(20,332), 2.535(39,422), 1.723(26,640), and 1.662(40,642).

The new mineral, a member of the garnet group, is named for mineral collector Helmut Schäfer, the discoverer. The mineral occurs as an overgrowth on V-barren magnesioferrite in a 5 mm vug in a silicate-rich xenolith in leucite tephrite lava at the Bellberg volcano. Type material is in the Institut für Mineralogie, Ruhr-Universität Bochum, Germany, **J.L.J.**

Stoppaniite*

G. Ferraris, M. Prencipe, P. Rossi (1998) Stoppaniite, a new member of the beryl group: crystal structure and crystal-chemical implications. Eur. J. Mineral., 10, 491–496.

Single-crystal X-ray structure study ($R = 0.049$) of an [001] prismatic crystal from Vico, Latium, Italy, gave hexagonal symmetry, space group *P*6/*mcc*, $a = 9.397(1)$, $c = 9.202(2)$ Å. $D_{meas} = 2.79(3)$, $D_{calc} = 2.817$ g/cm^3 for $Z = 1$ and the formula $(Fe_{2.30}Mg_{0.67}Al_{0.77}Be_{0.16}Mn_{0.05}Ti_{0.03}Sc_{0.02})_{\Sigma 4.00}[Be_6(Si_{11.55}Be_{0.45})_{\Sigma 12.00}O_{36-z}(OH)_z]\cdot(H_2O)_2(Na_{0.93}K_{0.01}Cs_{0.02})_{\Sigma 0.96}$. The generalized formula is $(Fe,Al,Mg)_4[Be_6Si_{12}O_{36}]\cdot(H_2O)_2(Na,\square)_2$, which is an Fe-dominant member of the beryl group.

Discussion. A complete description is not available. The mineral and name were approved under IMA proposal No. 96–008.

Stibnite polymorph(?)

P. Arun, G. Vedeshwar (1996) On the structure of stibnite (Sb_2S_3). J. Materials Sci., 31, 6507–6510.

A needle-like crystal showing a cleavage parallel to the elongation, and with a composition stated to correspond to Sb_2S_3, was collected from Andra Pradesh, India. Single-crystal X-ray structure study ($R = 0.16$) gave orthorhombic symmetry, space group *Pmmm*, $a = 14.20$, $b = 11.47$, $c = 7.47$ Å. The X-ray diffractogram (15 lines listed) has strongest lines of 3.83(64,030), 3.43(100,112), 2.464(39,431), 2.062(34,323), 1.946(34,631), and 1.423(36,624).

Discussion. The *d* values above have been converted from the listed 2Θ values assuming Cu*K*α X-radiation. $D_{calc} = 3.71$ g/cm^3 for $Z = 8$, which is considerably lower than $D_{meas} = 4.63$ g/cm^3 for stibnite. **J.L.J.**

$(Cu,Ag,Fe)_6S_4$

N. Cook, P.G. Spry, F.M. Vokes (1998) Mineralogy and textural relationships among sulphosalts and related minerals in the Bleikvassli Zn-Pb-(Cu) deposit, Nordland, Norway. Mineralium Deposita, 34, 35–56.

Electron microprobe analysis gave Cu 32.74, Fe 8.69, Ag 36.03, Pb 0.09, Sb 0.03, Bi 0.12, S 21.83, sum 99.53 wt%, corresponding to $(Cu_{3.08}Ag_{1.99}Fe_{0.93})_{\Sigma 6.00}S_{4.07}$. The analyzed grain is about 10 μm in diameter and is associated with chalcocite, bornite, native silver and bismuth, tetrahedrite, stromeyerite, and mckinstryite. An unidentified mineral of similar composition has been reported to occur in Bulgaria (*Am. Mineral*., 78, p. 674, 1993). **J.L.J.**

V-Cr-W (oxide?)

U. Kolitsch (1999) A new vanadium-, chromium-, and tungsten-bearing mineral from the rankachite paragenesis at the Clara mine, central Black Forest. Aufschluss, 50, 23–32 (in German, English abs.).

Pale yellowish to pale greyish green spherulites, 0.1 mm in diameter, consist of 1–4 μm crystallites with an apparent $H < 3$. Microbeam analyses indicated that the mineral may be a V-Cr-W oxide containing a small amount of Ca, wherein (V+Cr):W = ~1:1. The Debye–Scherrer X-ray powder pattern has strongest lines of 6.25(40), 5.75(70), 3.724(30), 3.112(100), and 2.507(30B); the first four lines are 10.5(20), 8.3(5), 7.6(5), and 6.81 Å (10). The mineral is secondary and is accompanied by older rankachite, barite, fluorite, quartz, and pyrite. **J.L.J.**

Alunite-group mineral

G.S. Ripp, S.V. Kanakin (1998) Phosphate minerals in the metamorphosed high-alumina rocks of the Ichetui occurrence, Transbaikal region. Doklady Earth Sciences, 359(2), 233–235 (English translation of Doklady Akad. Nauk, 359(2), 223–225).

Among the alunite-type minerals in the lazulite-bearing rocks are svanbergite, woodhouseite, crandallite, florencite, and an unidentified mineral for which one of the three listed electron microprobe analyses gave Na_2O 3.50, K_2O 0.40, SrO 5.34, Al_2O_3 35.36, P_2O_5 8.14, SO_3 28.39, H_2O (inferred) 18.00, sum 99.33 wt%. The main X-ray diffraction lines are 5.68(38), 4.874(62), 3.480(57), 3.256(55), 3.209(32), 3.058(35), 2.950(100), 2.772(60), 2.212(100), 1.888(80), 1.743(57), and 1.459(46).

Discussion. For an alunite-type mineral the A-site occupancy is $(Na_{0.34}Sr_{0.22}K_{0.04})_{\Sigma 0.60}$ rather than $\Sigma = 1.00$, which suggests that hydronium may be present. The X-ray pattern has lines additional to those indexable on a standard hexagonal alunite-type unit cell. **J.L.J.**

$(K,Na)(Fe,Mn)_4(PO_4)_3$

E.J. Olsen, A. Kracher, A.M. Davis, I.M. Steele, I.D. Hutcheon, T.E. Bunch (1999) The phosphates of IIIAB iron meteorites. Meteoritics Planet. Sci., 34, 285–300.

Electron microprobe analyses are given for two grains of johnsomervilleite-like phosphates that are classified as unknown phosphates because the compositions deviate from johnsomervilleiite stochiometry. The grains are in contact with sarcopside in the El Sampal IIIA meteorite. A K-rich, galileiite-type mineral intergrown with graftonite and johnsomervilleite in the Sandtown IIIA meteorite gave Na_2O 2.23, K_2O 5.18, CaO 0.18, MnO 8.05, FeO 44.40, Cr_2O_3 0.36, P_2O_5 39.20, sum 99.60 wt%, corresponding to $(K_{1.2}Na_{0.8})_{\Sigma 2}(Fe_{6.7}Mn_{1.2}Cr_{0.05}Ca_{0.04})_{\Sigma 8}(PO_4)_6$, which may be the K-dominant analog of galileiite. **J.L.J.**

New Data

Bafertisite

Zuming Yang, G. Cressey, M. Welch (1999) Reappraisal of the space group of bafertisite. Powder Diffraction, 14, 22–24.

Bafertisite has been described in the past as orthorhombic or monoclinic, the latter with space groups $P2_1/m$ or *Cm*. Single-crystal X-ray study of bafertisite from the type locality, Bayan Obo, Inner Mongolia, and from Jiangsu Province, China, showed the space group to be *Cm*. The new cell dimensions for both samples are similar, and those for the mineral from Bayan Obo are a = 10.612(3), b = 13.637(7), c = 12.464(2) Å, β = 119.49(2)°. **J.L.J.**

Dashkesanite

I.V Pekov, M.E. Nefedova, N.V. Chukanov, D.Yu. Pushcharovskii (1998) Dashkesanite $(K,Na)Ca_2(Fe^{2+},Mg)_4Fe^{3+}[Si_6Al_2O_{22}](Cl,OH)_2$: validation of its status as a mineral species and new data. Moscow Univ. Geol. Bull., 53(2), 33–41.

Dashkesanite in generally regarded as a variety of hastingsite amphibole. Cotype samples from the Dashkesan Co-Fe deposit, Azerbaidzhan, and from other localities, were re-examined; new chemical analyses of a type specimen gave SiO_2 35.1, TiO_2 0.5, Al_2O_3 11.3, Fe_2O_3 8.4, FeO 23.1, MnO 0.04, MgO 2.7, CaO 11.0, K_2O 3.0, Na_2O 1.0, H_2O^+ 0.5, Cl 4.7, F 0.1, O ≡ (Cl,F) 1.2, sum 100.6 wt%, corresponding to $(K_{0.63}Na_{0.32})_{\Sigma 0.95}Ca_{1.95}(Fe^{2+}_{3.19}Fe^{3+}_{1.04}Mg_{0.67}Ti_{0.08}Mn^{2+}_{0.05}Al_{0.01})_{\Sigma 5.04}[Si_{5.81}Al_{2.19}O_{22}](Cl_{1.32}OH_{0.55}F_{0.05}O_{0.01})$. D_{meas} = 3.52, D_{calc} = 3.50 g/cm³ for Z = 2. Single-crystal X-ray structure study indicated monoclinic symmetry, space group $C2/m$; a = 9.991(2), b = 17.99(1), c = 5.290(1) Å, β = 104.99(1)° as refined from a powder pattern (diffractometer, Fe$K\alpha$ radiation) with strongest lines of 8.53(100,110), 3.32(11,240), 3.16(51,310), 2.981(12,221,051), 2.839(18,330), 2.749(23,$\bar{3}$31), and 2.191(10,$\bar{2}$91). The structural formula is $(K_{0.6}Na_{0.4})Ca_2(Fe^{2+}_{1.6}Mg_{0.4})Fe^{2+}_{1.0}Fe^{3+}_{0.7}Mg_{0.3})Fe^{2+}[(Si_{2.9}Al_{1.1})(Si_{3.4}Al_{0.6})O_{22}](Cl_{1.4}OH_{0.6})$, and the simplified formula is $(K,Na)Ca_2(Fe^{2+},Mg)_4Fe^{3+}[Si_6Al_2O_{22}](Cl,OH)_2$.

Discussion. Dashkesanite is not a valid mineral name. In the IMA-approved nomenclature, the mineral is potassic-chlorohastingsite. **J.L.J.**

Tazheranite

R.K. Rastsvetaeva, D.Yu. Pushcharovskii, E.M. Spiridonov, V.M. Gekimyants (1998) Tazheranite and calzirtite: structural-mineralogical similarity and distinction. Doklady Akad. Nauk, 359(4), 529–531 (in Russian).

Single-crystal X-ray structure study (R = 0.018) of tazheranite from skarn associated with the Tazheranskii nepheline syenite, Lake Baikal, gave cubic symmetry, space group $Fm\bar{3}m$, a = 5.111(1) Å, D_{calc} = 4.9 g/cm³ for Z = 4. Electron microprobe analysis gave a formula corresponding to $(Ca_{2.00}Sr_{0.05}Na_{0.02}Ce_{0.01})_{\Sigma 2.08}(Ti_{1.99}Al_{0.01}Fe_{0.01}Mg_{0.01}Nb_{0.02})_{\Sigma 2.04}(Zr_{4.83}Hf_{0.04})_{\Sigma 4.87}O_{15.89}$, ideally $Ca_2Ti_2Zr_5O_{16}$. Ordering of cations in tazheranite results in its higher symmetry relative to that of calzirtite, which is tetragonal. **J.L.J.**