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ЕГОРОВИТ $Na_4[Si_4O_8(OH)_4] \cdot 7H_2O$ — НОВЫЙ МИНЕРАЛ ИЗ ЛОВОЗЕРСКОГО ЩЕЛОЧНОГО МАССИВА (КОЛЬСКИЙ ПОЛУОСТРОВ)[1]

I. V. PEKOV, *N. V. ZUBKOVA*, *N. V. CHUKANOV*, *A. E. ZADOV*, *V. G. GRISHIN*, *D. Yu. PUSHCHAROVSKY*. YEGOROVITE, $Na_4[Si_4O_8(OH)_4] \cdot 7H_2O$ — A NEW MINERAL FROM LOVOZERO ALKALINE MASSIF (KOLA PENINSULA)

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A new mineral yegorovite was found in the late hydrothermal, low-temperature paragenesis in the peralkaline pegmatite Palitra at Kedykverpakhk Mt., Lovozero alkaline massif, Kola Peninsula, Russia. It is associated intimately with revdite and megacyclite and earlier natrosilite, microcline, villiaumite, etc. Yegorovite forms coarse, usually divergent prismatic (up to 0.05 × 0.15 × 1 mm) or lamellar (up to 0.05 × 0.7 × 0.8 mm) crystals. Polysynthetic twins and parallel intergrowths are typical. Individuals are usually combined in bunches or chaotic groups (up to 2 mm), radial-lamellar clusters occur rarely. Yegorovite is transparent, colorless. Luster is vitreous. Cleavage is (010) and (001) perfect. Fracture is splintery; crystals are readily split to acicular fragments. Mohs' hardness ~2. D_{meas} 1.90(2), D_{calc} 1.92 г/см^3. Optically biaxial, negative, with $\alpha = 1.474(2)$, $\beta = 1.479(2)$, $\gamma = 1.482(2)$. $2V_{meas} > 70°$, $2V_{calc} = 75°$. Orientation: $X \wedge a \sim 15°$, $Y = c$, $Z = b$. IR spectrum is given. Chemical composition (wt %; electron probe, H_2O by total difference) is: Na_2O 23.28, SiO_2 45.45, H_2O_{calc} 31.27, total 100.00. The empirical formula is: $Na_{3.98}Si_{4.01}O_{8.02}(OH)_{3.98} \cdot 7.205H_2O$. The idealized formula is: $Na_4[Si_4O_8(OH)_4] \cdot 7H_2O$. Yegorovite is monoclinic, space group $P2_1/c$. Unit cell dimensions are: $a = 9.874$, $b = 12.398$, $c = 14.897$ Å, $\beta = 104.68°$, $V = 1764.3$ Å^3, $Z = 4$. The strongest lines of the X-ray powder diagram (d, Å — $I[hkl]$) are: 7.21—70[002]; 6.21—72[012, 020]; 4.696—44[022]; 4.003—49[211]; 3.734—46[$\bar{2}$13], 3.116—100[024, 040], 2.463—38[402, $\bar{2}$43]. The crystal structure was solved by single-crystal method, $R_{hkl} = 0.0745$. Yegorovite is a representative of the new structural type, with its structure consisting of single chains of Si-tetrahedra $[Si_4O_8(OH)_4]^{\infty}$ and 6-fold polyhedra of two types centered by Na: $[NaO(OH)_2(H_2O)_3]$ and $[NaO(OH)(H_2O)_4]$. The mineral was named in memory of the outstanding Russian crystallographer and crystallochemist Yu. K. Yegorov-Tismenko (1938—2007). The type specimen is deposited in Fersman Mineralogical Museum of Russian Academy of Sciences, Moscow.