Yakhontovite $(Ca,K)_{0.5}(Cu,Fe^{3+},Mg)_2Si_4O_{10}(OH)_2 \cdot 3H_2O$

Crystal Data: Monoclinic, probable. *Point Group:* n.d. In aggregates of equant crystals, to 10 μm.

Physical Properties: *Fracture:* Conchoidal. Hardness = 2–3 D(meas.) = n.d. D(calc.) = n.d.

Optical Properties: Semitransparent. *Color:* Pistachio-green. *Luster:* Dull. *Optical Class:* Biaxial. *Pleochroism:* In blue-greens. *Orientation:* $Z \wedge c = 12°–14°$. $\alpha = 1.530–1.547$ β = n.d. $\gamma = 1.560–1.570$ 2V(meas.) = n.d.

Cell Data: *Space Group:* n.d. $a = 5.26$ $b = 9.108$ $c = 13.89$ (c•sin β) β = n.d. Z = n.d.

X-ray Powder Pattern: Pridorozhnoye deposit, Russia; 13.9 Å expands to 17.9 Å after treatment with glycerin.
13.9, 7.30, 4.5, 3.2, 2.88 [strongest lines only].

Chemistry:

	(1)
SiO_2	54.83
TiO_2	0.00
Al_2O_3	0.08
Fe_2O_3	15.03
MnO	0.00
CuO	15.20
ZnO	0.40
MgO	6.21
CaO	2.62
Na_2O	0.00
K_2O	0.15
Total	94.52

(1) Pridorozhnoye deposit, Russia; by electron microprobe, corresponding to $(Ca_{0.20}K_{0.01})_{\Sigma=0.21}(Cu_{0.84}Fe^{3+}_{0.83}Mg_{0.67}Zn_{0.02}Al_{0.01})_{\Sigma=2.37}Si_4O_{10}(OH)_2$; wet chemical analysis of a mixture with malachite and pseudomalachite gives H_2O 14.5% and all Fe as Fe^{3+}.

Mineral Group: Smectite group.

Occurrence: As veins and coatings in deeply oxidized sulfide-cassiterite ores.

Association: Pyrrhotite, chalcopyrite, pyrite, stannite, malachite, pseudomalachite, chrysocolla, iron oxides, quartz.

Distribution: From the Pridorozhnoye [Roadside] tin deposit, right bank of the Silinka River, nine km from its confluence with the Amur River, near Komsomol'sk-on-Amur, Russia.

Name: For Liya Konstantinova Yakhontova (1925–), Russian mineralogist, Moscow Univesity, Moscow, Russia.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 84395.

References: (1) Postnikova, V.P., S.I. Tsipurskii, G.A. Sidorenko, and A.V. Mokhov (1986) Yakhontovite–a new copper-bearing smectite. Mineral. Zhurnal, 8(6), 80–84 (in Russian). (2) (1988) Mineral. Abs., 39, 122 (abs. ref. 1). (3) (1991) Amer. Mineral., 76, 668–669 (abs. ref. 1).