Crystal Data: Triclinic. *Point Group*: $\bar{1}$. As prismatic, lath or bar-like crystals to 70 μm, or in sprays, sheaf-like aggregates or crusts to 0.5 mm.

Physical Properties: *Cleavage*: None. *Fracture*: Uneven. *Tenacity*: Brittle. Hardness = 3.5-4 VHN = 182 (20 g load). D(meas.) = n.d. D(calc.) = 4.54

Optical Properties: Opaque. *Color*: Golden brown to reddish brown, gray with a brownish hue and distinct red-brown internal reflections in reflected light. *Streak*: Yellowish brown. *Luster*: Semi-metallic. *Anistropism*: Weak. *Bireflectance*: Weak.
Optical Class: n.d.
R_1-R_2: (470) 14.2–12.45, (546) 13.2–11.6, (589) 13.0–11.4, (650) 12.6–11.35

Cell Data: *Space Group*: $P\bar{1}$. a = 6.08(4) b = 8.26(5) c = 10.71(6) α = 97.8(1)° β = 92.4(1)° γ = 90.4(1)° Z = 2

X-ray Powder Pattern: Yadovitaya fumarole, Tolbachik volcano, Kamchatka, Russia.
2.526 (100), 2.322 (98), 2.745 (47), 8.18 (46), 3.047 (41), 10.65 (32), 1.867 (23)

Chemistry:

	(1)	(2)
K_2O	4.90	6.56
CaO	0.04	
PbO	1.29	
CuO	48.20	55.43
ZnO	5.59	
Al_2O_3	0.08	
Fe_2O_3	0.10	
P_2O_5	0.05	
As_2O_5	4.49	
V_2O_5	31.89	38.01
SO_3	0.19	
MoO_3	2.34	.
Total	99.16	100.00

(1) Yadovitaya fumarole, Tolbachik volcano, Kamchatka, Russia; average of 8 electron microprobe analyses; corresponding to $(K_{0.76}Pb_{0.04}Ca_{0.01})_{\Sigma=0.81}(Cu_{4.45}Zn_{0.51}Al_{0.01}Fe_{0.01})_{\Sigma=4.98}$ $(V_{2.58}As_{0.29}Mo_{0.12}S_{0.02}P_{0.01})_{\Sigma=3.02}O_{13}$. (2) $KCu_5O(VO_4)_3$.

Occurrence: In sublimates around a volcanic fumarole.

Association: Lammerite, hematite, palmierite, tenorite, piypite, rutile, orthoclase, lyonsite, pseudolyonsite, lammerite-β, langbeinite, calciolangbeinite, cupromolybdite.

Distribution: From the Yadovitaya (poisonous) fumarole, Second scoria cone of the Northern Breach, Great Tolbachik Fissure Eruption, Tolbachik volcano, Kamchatka, Russia.

Name: Honors Russian crystallographer and crystal chemist Galina L. Starova (b. 1946) for her contributions to the crystal chemistry of minerals from the Tolbachik fumaroles.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia (4196/1).

References: (1) Pekov, I.V., M.E. Zelenski, V.O. Yapaskurt, Y.S. Polekhovsky, and M.N. Murashko (2013) Starovaite, $KCu_5O(VO_4)_3$, a new mineral from fumarole sublimates of the Tolbachik volcano, Kamchatka, Russia. European Jour. Mineral., 25, 91-96. (2) (2014) Amer. Mineral., 99, 1517-1518 (abs. ref. 1).