

Crystal Data: Orthorhombic. *Point Group:* $mm2$. As prismatic to acicular, typically sword-like, crystals to 0.15 mm, elongated along [010] and flattened on (100), displaying {011}, {201}, {100}, and {001}. Also as sprays or chaotic groups.

Physical Properties: *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = n.d. (synthetic analog H = 3.) D(meas.) = n.d. D(calc.) = 3.49

Optical Properties: Transparent. *Color:* Colorless. *Streak:* n.d. *Luster:* Vitreous. *Optical Class:* Biaxial (+). $\alpha = 1.784(3)$ $\beta = 1.792(3)$ $\gamma = 1.870(5)$ 2V(meas.) = Small. 2V(calc.) = 37° *Dispersion & Pleochroism:* None. *Orientation:* $X = b$, $Y = a$, $Z = c$.

Cell Data: Space Group: $Pna2_1$ (by analogy to synthetic analogue.) $a = 13.174(4)$
 $b = 6.5635(10)$ $c = 10.805(2)$ $Z = 8$

X-ray Powder Pattern: Arsenatnaya fumarole, Tolbachik volcano, Kamchatka, Russia. 2.826 (100), 2.809 (96), 5.62 (74), 3.157 (66), 4.18 (19), 2.704 (19), 5.91 (17)

Chemistry:	(1)	(2)
K ₂ O	18.98	19.47
Fe ₂ O ₃	5.07	
TiO ₂	27.49	33.03
As ₂ O ₅	47.48	47.50
Total	99.02	100.00

(1) Arsenatnaya fumarole, Tolbachik volcano, Kamchatka, Russia; average of 4 electron microprobe analyses supplemented by Raman spectroscopy; corresponds to $K_{1.00}(Ti_{0.85}Fe^{3+}_{0.16})_{\Sigma=1.01}As_{1.02}O_5$.

(2) KTiO(AsO₄).

Occurrence: Formed in sublimates encrusting basaltic scoria around a volcanic fumarole.

Association: Hatertite, bradaczekite, johillerite, yurmarinite, tilasite, arsmirandite, hematite, tenorite, As-bearing orthoclase, fluorophlogopite, apthitalite.

Distribution: From the Arsenatnaya fumarole, Second scoria cone, Northern Breakthrough of the Great Tolbachik Fissure Eruption, Tolbachik volcano, Kamchatka, Russia.

Name: For the mineral's chemical composition, *kalium titanylarsenate*.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (4504/1).

References: (1) Pekov, I.V., V.O. Yapaskurt, S.N. Britvin, N.V. Zubkova, M.F. Vlasina, and E.G. Sidorov (2016) New arsenate minerals from the Arsenatnaya fumarole, Tolbachik volcano, Kamchatka, Russia. V. Katiarsite, KTiO(AsO₄). Mineral. Mag., 80(4), 639-646. (2) (2017) Amer. Mineral., 102, 469 (abs. ref. 1).