

Kazanskyite**Ba□TiNbNa₃Ti(Si₂O₇)₂O₂(OH)₂(H₂O)₄**

Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Forms rosettes to 5 cm composed of extremely fine (0.01-0.1 mm) flakes and lamellae.

Physical Properties: *Cleavage:* Perfect on {001}. *Fracture:* Splintery. *Tenacity:* Flexible. *Hardness* = 3 D(meas.) = n.d. D(calc.) = 2.930

Optical Properties: Transparent. *Color:* Colorless to pale tan. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (+). $\alpha = 1.695(2)$ $\beta = 1.703(2)$ $\gamma = 1.733(2)$ $2V(\text{meas.}) = 64.8(7)^\circ$ $2V(\text{calc.}) = 55.4^\circ$ *Orientation:* $X \wedge a = 87.4^\circ$, $X \wedge b = 85.2^\circ$, $X \wedge c = 13.4^\circ$, $Y \wedge a = 92.1^\circ$, $Y \wedge b = 5.1^\circ$, $Y \wedge c = 102.8^\circ$, $Z \wedge a = 176.7^\circ$, $Z \wedge b = 91.9^\circ$, $Z \wedge c = 86.0^\circ$.

Cell Data: *Space Group:* $P\bar{1}$. $a = 5.4260(9)$ $b = 7.135(1)$ $c = 25.514(4)$
 $\alpha = 90.172(4)^\circ$ $\beta = 90.916(4)^\circ$ $\gamma = 89.964(3)^\circ$ $Z = 2$

X-ray Powder Pattern: Kirovskii mine, Mt. Kukisvumchorr, Kola Peninsula, Russia. 2.813 (100), 2.149 (82), 3.938 (70), 4.288 (44), 2.128 (44), 3.127 (39), 3.690 (36)

Chemistry:	(1)		(1)
Nb ₂ O ₅	9.70	CaO	0.89
TiO ₂	19.41	K ₂ O	1.12
SiO ₂	28.21	Na ₂ O	9.15
Al ₂ O ₃	0.13	H ₂ O	[9.87]
FeO	0.28	F	1.29
MnO	4.65	<u>-O=F₂</u>	<u>0.54</u>
BaO	12.50	Total	100.07
SrO	3.41		

(1) Kirovskii mine, Mt. Kukisvumchorr, Kola Peninsula, Russia; electron microprobe analysis, H₂O confirmed by Raman spectroscopy and calculated from structure; corresponding to (Na_{2.55}Mn_{0.31}Ca_{0.11}Fe²⁺_{0.03}) $\Sigma=3.00$ (Ba_{0.70}Sr_{0.28}K_{0.21}Ca_{0.03}) $\Sigma=1.22$ (Ti_{2.09}Nb_{0.63}Mn_{0.26}Al_{0.02}) $\Sigma=3.00$ Si_{4.05}O_{21.42}H_{9.45}F_{0.59}.

Occurrence: In the natrolite zone of a hydrothermally-altered, pegmatite vein cutting nepheline syenite near the contact with ijolite-urtites.

Association: Natrolite, barytolamprophyllite, nechelyustovite, hydroxylapatite, belovite-(La), belovite-(Ce), gaidonnayite, nenadkevichite, epididymite, apophyllite-(KF), sphalerite.

Distribution: From the level +252 of the Kirovskii mine, Mt. Kukisvumchorr, Khibiny alkaline massif, Kola Peninsula, Russia.

Name: Honors Vadim Ivanovich Kazansky (b.1926), a Russian ore geologist and expert in Precambrian metallogeny of the Kola region.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (#4103/1).

References: (1) Cámara, F., E. Sokolova, and F.C. Hawthorne (2012) Kazanskyite, Ba□TiNbNa₃Ti(Si₂O₇)₂O₂(OH)₂(H₂O)₄, a Group-III Ti-disilicate mineral from the Khibiny alkaline massif, Kola Peninsula, Russia: description and crystal structure. *Mineral. Mag.*, 76(3), 473-492. (2) (2015) *Amer. Mineral.*, 100, 1327-1328 (abs. ref. 1).