

Kukisvumite

Na₆ZnTi₄Si₈O₂₈•4H₂O

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. Crystals prismatic along [001], flattened on {100}, up to 7 mm, in fan-shaped aggregates replacing lamprophyllite.

Physical Properties: *Cleavage:* Parting on {010}. *Fracture:* Splintery, uneven. *Tenacity:* Elastic. Hardness = 5.5–6 VHN = 517–571, average 544 (20 g load). D(meas.) = 2.90 D(calc.) = 2.95 Yellow-green cathodoluminescence.

Optical Properties: Transparent. *Color:* White to colorless, rarely with a silver tint; colorless in transmitted light. *Streak:* White. *Luster:* Vitreous.

Optical Class: Biaxial (-). *Orientation:* X = a; Y = b; Z = c. $\alpha = 1.676(3)$ $\beta = 1.746(3)$ $\gamma = 1.795(3)$ 2V(meas.) = n.d. 2V(calc.) = 77°

Cell Data: *Space Group:* Pccn. a = 28.889(4) b = 8.604(4) c = 5.215(3) Z = 2

X-ray Powder Pattern: Korovskii mine, Russia. 3.009 (100), 14.49 (90), 4.815 (80), 3.722 (65), 6.42 (60)

Chemistry:	(1)
SiO ₂	42.66
TiO ₂	27.03
Nb ₂ O ₅	0.83
FeO	0.23
MnO	0.61
ZnO	5.99
Na ₂ O	16.27
F	0.20
H ₂ O	[6.26]
-O = F ₂	[0.08]
Total	[100.00]

(1) Korovskii mine, Russia; by electron microprobe, contains F 0.20%, H₂O by difference; corresponding to Na_{5.96}(Zn_{0.84}Mn_{0.10})_{Σ=0.94}(Ti_{3.85}Nb_{0.07}Fe_{0.04})_{Σ=3.96}Si_{8.08}O₂₈•4.03H₂O.

Occurrence: In pegmatite veins cutting ijolite-urtite rocks in a differentiated alkalic massif.

Association: Lamprophyllite, arfvedsonite, microcline, nepheline, natrolite.

Distribution: At the Korovskii apatite mine, Mt. Kukisvumchorr, Khibiny massif, Kola Peninsula, Russia.

Name: For Mt. Kukisvumchorr, Kola Peninsula, Russia, on which it occurs.

Type Material: Geology Museum, Kola Branch, Academy of Sciences, Apatity, 5972; Mining Institute, St. Petersburg, 2020/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 87091.

References: (1) Yakovenchuk, V.N., Y.A. Pakhomovskii, and A.N. Bogdanova (1991) Kukisvumite – a new mineral from the alkaline pegmatites of the Khibiny massif (Kola Peninsula). Mineral. Zhurnal, 13(2), 63–67 (in Russian). (2) (1992) Amer. Mineral., 77, 1116 (abs. ref. 1).