

Tikhonenkovite

SrAlF₄(OH)·H₂O

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Crystal Data: Monoclinic. *Point Group:* 2/m. Crystals equant to flattened on {100}, to 1 cm, with prominent {010}, {011}, {102}, {111}, and a number of rarer forms; may be in flat radial rosettes, or drusy incrustations.

Physical Properties: *Cleavage:* {100}, perfect. *Fracture:* Conchoidal to irregular. Hardness = 3.5 D(meas.) = 3.26(1) D(calc.) = [3.30]

Optical Properties: Transparent. *Color:* Colorless, may be pinkish when included with iron oxides; colorless in transmitted light. *Luster:* Vitreous.

Optical Class: Biaxial (-). $\alpha = 1.452(1)$ $\beta = 1.456(1)$ $\gamma = 1.458(1)$ $2V(\text{meas.}) = 70^\circ$

Cell Data: *Space Group:* P2₁/c. $a = 5.02(2)$ $b = 10.62(4)$ $c = 8.73(3)$ $\beta = 102^\circ 43(10)'$ Z = [4]

X-ray Powder Pattern: Karasug deposit, Russia.

4.89 (10), 3.64 (9), 3.27 (8), 2.095 (7), 2.299 (6), 4.44 (5), 3.33 (5)

Chemistry:

	(1)
Na	0.007
K	0.012
Ca	0.93
Sr	36.74
Al	12.10
F	33.88
H ₂ O	[7.97]
OH	[7.62]
Fe ₂ O ₃	0.52
Total	[99.78]

(1) Karasug deposit, Russia; alkalis by flame photometry, "H₂O⁺ 12.0% recalculated into 15.59% H₂O and OH"; after deduction of Fe₂O₃ as impurity, corresponds to (Sr_{0.94}Ca_{0.05})_{Σ=0.99}Al_{1.01}F_{4.00}(OH)_{1.01}·0.99H₂O.

Polymorphism & Series: Dimorphous with acuminite.

Occurrence: A secondary mineral formed in fissures in the oxidation zone of veins of iron ores in tectonic breccias.

Association: Gearskutite, karasugite, fluorite, barian celestine, strontianite, "limonite", hematite, quartz.

Distribution: In the Karasug iron-rare earth-barite-fluorite deposit, 15 km north of Karasug, western Tannu-Ola Mountains, Tuva, Siberia, Russia.

Name: To honor Igor Petrovich Tikhonenkov (1927–1961), student of alkalic rocks and minerals, Institute of Mineralogy and Geochemistry of Rare Elements, Moscow, Russia.

Type Material: Mining Institute, St. Petersburg, 994/1; Geological Survey Institute, Moscow; Institute of Mineralogy and Geochemistry of Rare Elements, Moscow; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 67133, 67134, vis1209–1212.

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