

Crystal Data: Monoclinic. *Point Group:* 2/m. Crystals very thin bladed, twinned and flattened on {100} and elongated along [001], to 0.25 mm, in rosettes and fan-shaped aggregates. *Twinning:* On {100} as composition and twin plane.

Physical Properties: *Cleavage:* Perfect on {100}, may be a parting. *Fracture:* Splintery. *Tenacity:* Brittle. Hardness = n.d. D(meas.) = 3.06–3.11 D(calc.) = 3.206

Optical Properties: Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (+). *Orientation:* Y = b; X ∧ c ≈ 7°. α = 1.4240(5) β = 1.4320(5) γ = 1.4415(5) 2V(meas.) = 94.5(2.0)° 2V(calc.) = 94°

Cell Data: *Space Group:* P2₁/c. a = 8.215(5) b = 11.989(3) c = 6.076(3) β = 96.22(1)° Z = 4

X-ray Powder Pattern: Karasug deposit, Russia. 4.25 (10), 3.64 (8), 3.06 (8), 2.125 (8), 6.76 (7), 3.15 (7), 3.03 (7)

Chemistry:	(1)	(2)
Na	0.04	0.43
K	0.05	0.33
Ca	14.32	13.05
Sr	29.91	29.12
Al	10.08	9.13
O	[15.12]	7.05
H	[0.95]	[0.44]
F	29.53	40.20
Total	[100.00]	[99.75]

(1) Karasug deposit, Russia; by electron microprobe, average of four analyses, (OH)¹⁻ by difference and charge balance; corresponds to Sr_{1.02}Ca_{0.96}Al_{1.01}[F_{4.19}(OH)_{2.54}]_{Σ=6.73}. (2) Do.; by electron microprobe, average of 12 analyses, O directly determined, (OH)¹⁻ by difference and charge balance; corresponds to Sr_{1.02}(Ca_{0.90}Na_{0.05}K_{0.02})_{Σ=0.97}Al_{0.94}[F_{5.85}(OH)_{1.22}]_{Σ=7.07}.

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

Association: Gearksutite, tikhonenkovite, fluorite, barian celestine, “limonite”, hematite, quartz.

Distribution: In the Karasug F–RE–barite–fluorite deposit, 15 km north of Karasug, western Tannu-Ola Mountains, Tuva, Siberia, Russia.

Name: For its occurrence in the Karasug deposit, Russia.

Type Material: University of Copenhagen, Copenhagen, Denmark; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia.

References: (1) Petersen, O.V., A.P. Khomyakov, E.S. Leonardsen, H.I. Micheelsen, and O. Johnsen (1994) Karasugite, SrCaAl[F, (OH)]₇, a new mineral species from the Karasug Fe–REE–barite–fluorite deposit, Tannu-Ola Range, South Siberia, Russia. Neues Jahrb. Mineral., Monatsh., 209–216. (2) (1995) Amer. Mineral., 80, 185 (abs. ref. 1).