

Crystal Data: Monoclinic, pseudorhombic. *Point Group:* 2/m. As tabular to pseudorhombic crystals, to 2 cm, and in grains and earthy aggregates. *Twining:* Common, by rotation about [102] (pseudo-hexagonal [0001]), giving intergrown and contact twillings.

Physical Properties: Hardness = 3.5 D(meas.) = 2.66(6) D(calc.) = 2.679 Slowly soluble in H₂O; fluoresces cream to pale blue under SW UV and green under LW UV.

Optical Properties: Transparent to translucent. *Color:* Colorless, pale sky-blue, pale pink, lilac. *Streak:* White. *Luster:* Vitreous to dull.

Optical Class: Biaxial (+), nearly uniaxial (+). *Pleochroism:* Slight. $\omega = 1.435$ $\epsilon = 1.439$ $\alpha = 1.439(1)$ $\beta = 1.439(1)$ $\gamma = 1.442(1)$ 2V(meas.) = 0° to very small.

Cell Data: *Space Group:* P2₁/m (synthetic). $a = 18.079(2)$ $b = 6.958(1)$ $c = 11.443(2)$ $\beta = 107.71^\circ$ $Z = 12$

X-ray Powder Pattern: Synthetic.

3.48 (100), 2.991 (85), 2.718 (85), 2.705 (85), 2.1419 (85), 3.80 (70), 2.564 (70)

Chemistry:

	(1)	(2)
SO ₃	43.41	43.51
Na ₂ O	50.1	50.52
K ₂ O	0.07	
F	10.10	10.32
Cl	0.02	
-O = (F, Cl) ₂	4.26	4.35
Total	99.44	100.00

(1) Mt. Alluaiv, Kola Peninsula, Russia; here recalculated to oxides. (2) Na₃(SO₄)F.

Occurrence: A sublimate from steam around a hot spring (Hortense Hot Spring, Colorado, USA); in nepheline syenite pegmatite veins in a differentiated alkalic massif (Mt. Alluaiv, Kola Peninsula, Russia); in sodalite-syenite xenoliths associated with an intrusive alkalic gabbro-syenite complex (Mont Saint-Hilaire, Canada).

Association: Burkeite, trona, halite, fluorite, calcite, phillipsite (Hortense Hot Spring, Colorado, USA); villiaumite, thermonatrite, sidorenkite, nepheline, feldspar, aegirine, lorenzenite, apatite, lamprophyllite (Mt. Alluaiv, Kola Peninsula, Russia).

Distribution: In the USA, from Hortense Hot Spring and at Wright's Well, Chalk Creek, west of Buena Vista, Chaffee Co., Colorado; from Point of Rocks, Colfax Co., New Mexico. At Mont Saint-Hilaire, Quebec, Canada. On Mts. Alluaiv and Kedykverpakhk, Lovozero massif, Kola Peninsula, Russia. From Lake Magadi, Kenya. At Lake Natron, Tanzania.

Name: Honoring Liya Nikolaevna Kogarko (1936–), Russian geochemist and petrologist, investigator of alkaline rocks.

Type Material: National Museum of Natural History, Washington, D.C., USA, 127420, 128029, 128030.

References: (1) Pabst, A. and W.N. Sharp (1973) Kogarkoite, a new natural phase in the system Na₂SO₄-NaF-NaCl. *Amer. Mineral.*, 58, 116-127. (2) Fanfani, L., G. Giuseppetti, C. Tadini, and P.F. Zanazzi (1980) The crystal structure of kogarkoite, Na₃SO₄F. *Mineral. Mag.*, 43, 753-759. (3) Kogarko, L.N. (1961) Chlorine-free schairerite from the nepheline syenites of the Lovozero massif (Kola Peninsula). *Doklady Acad. Nauk SSSR*, 139, 839-841. (4) Khomyakov, A.P. (1995) Mineralogy of hyperagpaitic alkaline rocks. Clarendon Press, Oxford, 168-169.

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