

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As pods to 10 cm; crystals crudely lamellar, to 2 cm, with {010} dominant.

Physical Properties: *Cleavage:* Perfect on {010}, good on {100} and {001}. *Fracture:* Stepped to conchoidal. *Tenacity:* Brittle. Hardness = 2.5 D(meas.) = 1.68(2) D(calc.) = 1.60 (empirical formula) or 1.64 (ideal formula). Highly unstable at normal atmospheric humidity and CO₂ concentration; decomposes to thermonatrite and opal.

Optical Properties: Transparent to translucent. *Color:* Colorless; aggregates white to pale brown or yellowish; colorless in thin section. *Streak:* White. *Luster:* Dull vitreous. *Optical Class:* Biaxial (+). $\alpha = 1.449(2)$ $\beta = 1.453(2)$ $\gamma = 1.458(3)$ 2V(meas.) = 80(5)° 2V(calc.) = 84° *Orientation:* XY || {010}; Z = b.

Cell Data: *Space Group:* Ibc_a. $a = 11.7119(6)$ $b = 16.973(1)$ $c = 11.5652(6)$ Z = 8

X-ray Powder Pattern: Mt. Kedykverpakhk, Lovozero alkaline massif, Kola Peninsula, Russia. 2.774 (100), 2.800 (97), 3.847 (89), 4.788 (42), 2.932 (42), 2.832 (35), 5.001 (30)

Chemistry:	(1)	(2)
Na ₂ O	21.49	21.81
K ₂ O	0.38	
Li ₂ O	0.003	
SiO ₂	21.42	21.14
<u>H₂O</u>	<u>54.86</u>	<u>57.05</u>
Total	98.15	100.00

(1) Mt. Kedykverpakhk, Lovozero alkaline massif, Kola Peninsula, Russia; electron microprobe and atomic emission analyses, H₂O by the Alimarin method, H₂O and OH confirmed by IR, corresponding to (Na_{1.96}K_{0.02})_{Σ=1.98}Si_{1.005}O₂(OH)₂·7.58H₂O. (2) Na₂[SiO₂(OH)₂]·8H₂O.

Occurrence: A late hydrothermal mineral, intergrown with natrophosphate in a ussingite vein in an alkaline igneous complex.

Association: Natrophosphate, natrolite, sodalite, vuonnemite, steenstrupine-(Ce), phosinaite-(Ce), natisite, gobbinsite, villiaumite, natrosilite, revdite.

Distribution: The Kedykverpakhk-22 vein, Mt. Kedykverpakhk, Karnasurt mine, Lovozero alkaline massif, Kola Peninsula, Russia.

Name: Honors mineralogist Boris Valentinovich Chesnokov (1928–2005) of the Ural Department, Russian Academy of Sciences, Miass.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow (catalog no. 3419/1).

References: (1) Pekov, I.V., N.V. Chukanov, A.E. Zadov, N.V. Zubkova, and D.Yu. Pushcharovsky (2007) Chesnokovite, Na₂[SiO₂(OH)₂]·8H₂O, the first natural sodium orthosilicate from the Lovozero alkaline pluton, Kola Peninsula: description and crystal structure of a new mineral species. Zap. Ross. Mineral. Obshch., 136(2), 25–39 (in Russian, English abstract); (2007) Geology of Ore Deposits, 49, 739–751 (in English). (2) (2009) Amer. Mineral., 94, 1077 (abs. ref. 1).