

**Crystal Data:** Triclinic. *Point Group:*  $\bar{1}$ . Forms fine-grained nodules, to 4 cm; also as spherulites of crystals with wedge-shaped terminations, to 0.7 mm.

**Physical Properties:** *Cleavage:* Present in two directions. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 6-6.5 D(meas.) = 2.99(1) D(calc.) = 3.07(1)

**Optical Properties:** Transparent. *Color:* Colorless to white, light to dark yellow-orange to orange. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (+).  $\alpha = 1.637(1)$   $\beta = 1.638(1)$   $\gamma = 1.675(1)$   $2V(\text{meas.}) < 10^\circ$   $2V(\text{calc.}) = 19(19)^\circ$

**Cell Data:** *Space Group:*  $P\bar{1}$ .  $a = 6.573(1)$   $b = 6.445(1)$   $c = 6.369(1)$   $\alpha = 60.995(2)^\circ$   $\beta = 61.257(2)^\circ$   $\gamma = 77.191(2)^\circ$   $Z = 1$

**X-ray Powder Pattern:** Chelkar, Kazakhstan.

2.92 (100), 3.22 (90), 2.84 (90), 5.69 (80), 2.79 (80), 3.13 (70), 2.14 (70)

Chemistry:	(1)	(2)	(3)
CaO	14.69	15.06	16.19
SrO	26.43	26.34	25.51
B <sub>2</sub> O <sub>3</sub>	45.31	44.93	46.29
Cl	9.58	9.22	9.22
H <sub>2</sub> O	[4.69]	[4.65]	[4.79]
-O = Cl	2.16	2.08	2.08
Total	98.54	98.12	99.92

(1) Kargan-tau, Kazakhstan; electron microprobe analysis, H<sub>2</sub>O calculated from structure refinement; corresponding to Ca<sub>1.01</sub>Sr<sub>0.98</sub>[B<sub>5.02</sub>O<sub>9</sub>]Cl<sub>1.04</sub>·H<sub>2</sub>O. (2) Nepskoye, Russia, electron microprobe analysis, H<sub>2</sub>O calculated from structure refinement; corresponding to Ca<sub>1.04</sub>Sr<sub>0.98</sub>[B<sub>4.99</sub>O<sub>9</sub>]Cl<sub>1.01</sub>·H<sub>2</sub>O. (3) Penobsquis deposit, New Brunswick, Canada; average of 3 electron microprobe analyses, H<sub>2</sub>O calculated; corresponding to Ca<sub>1.08</sub>Sr<sub>0.93</sub>[B<sub>5</sub>O<sub>9</sub>]Cl<sub>0.98</sub>·H<sub>2</sub>O.

**Mineral Group:** Hilgardite group.

**Occurrence:** In marine evaporite salt deposits and salt domes.

**Association:** Sylvite, halite, boracite, anhydrite, gypsum, magnesite, quartz (Kazakhstan); hydroboracite, boracite, walkerite, veatchite, szaibélyite, pringleite, congolite, a clay-group mineral (New Brunswick, Canada).

**Distribution:** In western Kargan-tau, Inder uplift and from Chelkar, Caspian region, Kazakhstan; in the Nepskoye potassium salt deposit, near Ust'-Kut, Irkutsk district, Siberia, Russia. In the Penobsquis evaporite deposits, 12 km NE of Sussex, New Brunswick, Canada.

**Name:** For the region, *Kargan-tau*, Kazakhstan, that produced the first specimens.

**Type Material:** A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia.

**References:** (1) Pekov, I.V., E.V. Lovskaya, N.V. Chukanov, A.E. Zadov, V.N. Apollonov, D.Yu. Pushcharovsky, O. Ferro, S.A. Vino-gradova (2001) Kurgantaite, CaSr[B<sub>5</sub>O<sub>9</sub>]Cl·H<sub>2</sub>O, revalidation of the mineral species and new data. *Zap. Vseross. Mineral. Obsheh.*, 130(3), 71-79 (in Russian, with English abs.). (2) (2002) *Amer. Mineral.*, 87, 1510-1511 (abs. ref. 1). (3) Grice, J.D., R.A. Gault and J. Van Velthuizen (2005) Borate minerals of the Penobsquis and Millstream deposits, Southern New Brunswick, Canada. *Can. Mineral.*, 43, 1469-1487.