

**Chelkarite****CaMgB<sub>2</sub>O<sub>4</sub>Cl<sub>2</sub>•7H<sub>2</sub>O(?)**

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**Crystal Data:** Orthorhombic. *Point Group:* 2/m 2/m 2/m. As flattened prismatic crystals, to 15 mm.

**Physical Properties:** *Cleavage:* Perfect || elongation. *Fracture:* Splintery. Hardness = n.d. D(meas.) = 2.21 D(calc.) = [1.96]

**Optical Properties:** Transparent. *Color:* Colorless. *Optical Class:* Biaxial (+).  $\alpha = 1.520$  ( $\alpha'$ )  $\beta = \text{n.d.}$   $\gamma = 1.558$  2V(meas.) = n.d.

**Cell Data:** *Space Group:* Pbca.  $a = 13.69$   $b = 20.84$   $c = 8.26$   $Z = [10]$

**X-ray Powder Pattern:** Chelkar salt dome, Kazakhstan. 3.531 (10), 10.42 (9), 2.209 (8), 4.96 (7), 2.029 (7), 6.68 (5), 4.19 (4)

Chemistry:	(1)	(2)
B <sub>2</sub> O <sub>3</sub>	20.07	20.06
Fe <sub>2</sub> O <sub>3</sub>	0.48	
SiO <sub>2</sub>	0.49	
MgO	14.92	11.62
CaO	15.85	16.16
Na <sub>2</sub> O	0.34	
K <sub>2</sub> O	0.44	
Cl	18.38	20.43
H <sub>2</sub> O	33.7	36.34
-O = Cl <sub>2</sub>	4.15	4.61
Total	100.52	100.00

(1) Chelkar salt dome, Kazakhstan. (2) CaMgB<sub>2</sub>O<sub>4</sub>Cl<sub>2</sub>•7H<sub>2</sub>O.

**Occurrence:** Very rare, in the insoluble residue of brines from a salt dome.

**Association:** Anhydrite, hilgardite, boracite, halite, carnallite, bischofite.

**Distribution:** From the Chelkar salt dome, Ak-sai Valley, Uralsk district, Kazakhstan.

**Name:** For the locality where the first samples were collected, the Chelkar salt dome, Kazakhstan.

**Type Material:** n.d.

**References:** (1) Avrova, N.P., V.M. Bocharov, I.I. Khalturina, and Z.R. Yunusova (1968) Mineralogy of borates in halogen formations. Geol. Razved. Mestorozhd. Tverd. Polez. Iskop. Kaz. [Geology and Exploration of Solid Mineral Deposits of Kazakhstan], 1969, 169–173 (in Russian). (2) (1971) Amer. Mineral., 56, 1122 (abs. ref. 1). (3) Shipovalov, Y.V. and N.P. Avrova (1971) X-ray study of the new borates aldzhanite and chelkarite. Issled. Oblast. Khim. Fiz. Metod. Anal. Min. Syr'ya, 176–179 (in Russian). (4) (1976) Mineral. Abs., 27, 80 (abs. ref. 3). (5) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union. Ocean Pictures, Moscow, 59.