

# Clinokurchatovite

# Ca(Mg, Fe<sup>2+</sup>, Mn<sup>2+</sup>)B<sub>2</sub>O<sub>5</sub>

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**Crystal Data:** Monoclinic. *Point Group:* 2/m. As twinned crystals, to 2 mm.  
*Twining:* Contact and polysynthetic on {010}.

**Physical Properties:** Hardness = 4.5 D(meas.) = 3.07–3.08 D(calc.) = [3.10]

**Optical Properties:** Semitransparent. *Color:* Colorless.

*Optical Class:* Biaxial (-). *Orientation:*  $Y \wedge a = 64^\circ$ ;  $Y \wedge b = 38^\circ$ ;  $Z \wedge a = 26^\circ$ ;  $Z \wedge b = 52^\circ$ .  
 $\alpha = 1.642\text{--}1.644$   $\beta = 1.674\text{--}1.675$   $\gamma = 1.699\text{--}1.704$   $2V(\text{meas.}) = 82^\circ\text{--}88^\circ$

**Cell Data:** *Space Group:*  $P2_1/b$ .  $a = 12.450$   $b = 5.514$   $c = 11.145$   $\beta = 104.13^\circ$   $Z = 8$

**X-ray Powder Pattern:** Sayak-IV deposit, Kazakhstan.

3.045 (10), 2.799 (10), 3.093 (8), 1.937 (8), 2.586 (5), 2.027 (5), 1.236 (5)

## Chemistry:

	(1)	(2)
B <sub>2</sub> O <sub>3</sub>	[37.7]	41.94
FeO	7.1	
MnO	0.9	
MgO	21.9	24.28
CaO	32.4	33.78
Total	[100.0]	100.00

(1) Sayak-IV deposit, Kazakhstan; average of three analyses, B<sub>2</sub>O<sub>3</sub> by difference; corresponds to Ca<sub>1.00</sub>(Mg<sub>0.94</sub>Fe<sub>0.17</sub>Mn<sub>0.02</sub>)<sub>Σ=1.13</sub>B<sub>1.95</sub>O<sub>5</sub>. (2) CaMgB<sub>2</sub>O<sub>5</sub>.

**Polymorphism & Series:** Dimorphous with kurchatovite.

**Occurrence:** A replacement of kurchatovite in boron-bearing rocks.

**Association:** Kurchatovite, suanite, ludwigite, szaibélyite, sakhaite, clinohumite, svabite, sphalerite (Solongo deposit, Russia).

**Distribution:** From the Sayak-IV boron deposit, northeast Balkhash region, Kazakhstan. In Russia, at the Solongo boron deposit, Buryatia; from the Titovskoye boron deposit, Tas-Khayakhtakh Mountains, Sakha; in the Novofrolovskoye copper deposit, near Krasnoturinsk, Turinsk district, Northern Ural Mountains.

**Name:** As the monoclinic dimorph of *kurchatovite*.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 82777.

**References:** (1) Malinko, S.V. and N.N. Pertsev (1983) Clinokurchatovite, a new structural modification of kurchatovite. Zap. Vses. Mineral. Obshch., 112, 483–487 (in Russian). (2) (1984) Amer. Mineral., 69, 810 (abs. ref. 1). (3) Simonov, M.A., Y.K. Yegorov-Tismenko, M.A. Yamnova, E.L. Belokoneva, and N.V. Belov (1980) Crystal structure of natural monoclinic kurchatovite Ca<sub>2</sub>(Mg<sub>0.86</sub>Fe<sub>0.14</sub>)(Mg<sub>0.92</sub>Fe<sub>0.08</sub>)[B<sub>2</sub>O<sub>5</sub>]<sub>2</sub>. Doklady Acad. Nauk SSSR, 251, 1125–1128 (in Russian).