

Clinokurchatovite

Ca(Mg, Fe²⁺, Mn²⁺)B₂O₅

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Crystal Data: Monoclinic. *Point Group:* 2/*m*. As twinned crystals, to 2 mm.
Twinning: 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:* $Y \wedge a = 64^\circ$; $Y \wedge b = 38^\circ$; $Z \wedge a = 26^\circ$; $Z \wedge b = 52^\circ$.
 $\alpha = 1.642$ – 1.644 $\beta = 1.674$ – 1.675 $\gamma = 1.699$ – 1.704 2V(meas.) = 82° – 88°

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 ₂ O ₃	[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, B₂O₃ by difference; corresponds to Ca_{1.00}(Mg_{0.94}Fe_{0.17}Mn_{0.02})_{Σ=1.13}B_{1.95}O₅. (2) CaMgB₂O₅.

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 Ca₂(Mg_{0.86}Fe_{0.14})(Mg_{0.92}Fe_{0.08})[B₂O₅]₂. Doklady Acad. Nauk SSSR, 251, 1125–1128 (in Russian).