Clinokurchatovite

\[ \text{Ca}(\text{Mg}, \text{Fe}^{2+}, \text{Mn}^{2+})\text{B}_2\text{O}_5 \]

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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. \]

\[ \alpha = 1.642–1.644 \quad \beta = 1.674–1.675 \quad \gamma = 1.699–1.704 \quad 2V(\text{meas.}) = 82^\circ–88^\circ \]

Cell Data: **Space Group:** \( P2_1/b. \)

\[ a = 12.450 \quad b = 5.514 \quad c = 11.145 \quad \beta = 104.13^\circ \quad Z = 8 \]

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:

<table>
<thead>
<tr>
<th>( \text{B}_2\text{O}_3 )</th>
<th>( \text{FeO} )</th>
<th>( \text{MnO} )</th>
<th>( \text{MgO} )</th>
<th>( \text{CaO} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>[37.7]</td>
<td>7.1</td>
<td>0.9</td>
<td>21.9</td>
<td>32.4</td>
</tr>
</tbody>
</table>

Total [100.0] 100.00

(1) Sayak-IV deposit, Kazakhstan; average of three analyses, \( \text{B}_2\text{O}_3 \) by difference; corresponds to \( \text{Ca}_{1.00}\text{Mg}_{0.94}\text{Fe}_{0.17}\text{Mn}_{0.02}\text{B}_2\text{O}_5 \). (2) \( \text{CaMgB}_2\text{O}_5 \).

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.


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