**Calcium catapleiite**

\[ \text{CaZrSi}_3\text{O}_9\cdot2\text{H}_2\text{O} \]

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**Crystal Data:** Hexagonal. *Point Group:* \([6/m \overline{2}m \overline{2}m]\) (by analogy to catapleiite).

Lamellar crystals and grains, to a few cm.

**Physical Properties:**
- **Cleavage:** Present. Hardness = 4.5–5
- **D(meas.) = 2.77**
- **D(calc.) = 2.75**

**Optical Properties:**
- Opaque, translucent on thin edges. Color: Pale yellow to cream.
- **Luster:** Vitreous to dull.
- **Optical Class:** Uniaxial (+). \(\omega = 1.603\quad \epsilon = 1.639\)

**Cell Data:**
- **Space Group:** \([P6_3/mmc]\)
- \(a = 7.40\quad c = 10.07\quad Z = 2\)

**X-ray Powder Pattern:**
- Burpala massif, Russia; very close to catapleiite.

2.96 (100), 3.96 (80), 3.06 (80), 1.975 (80), 1.835 (80), 6.45 (70), 1.740 (70)

**Chemistry:**

\[
\begin{array}{ll}
\text{SiO}_2 & 44.49 \\
\text{TiO}_2 & 0.06 \\
\text{ZrO}_2 & 31.00 \\
\text{Al}_2\text{O}_3 & 0.60 \\
\text{RE}_2\text{O}_3 & 0.28 \\
\text{Fe}_2\text{O}_3 & 0.36 \\
\text{CaO} & 13.82 \\
\text{Na}_2\text{O} & 0.32 \\
\text{K}_2\text{O} & 0.10 \\
\text{H}_2\text{O}^+ & 9.15 \\
\text{H}_2\text{O}^- & 0.18 \\
\hline
\text{Total} & 100.36 \\
\end{array}
\]

(1) Burpala massif, Russia; leading to \((\text{Ca}_{0.98}\text{Na}_{0.04}\text{Si}_{2.94}\text{Al}_{0.04})\Sigma=1.02\text{Zr}_{1.00}\Sigma=2.98\text{O}_9\cdot2.01\text{H}_2\text{O}\).

**Occurrence:** In cavities between crystals of microcline, in syenite pegmatites of a differentiated alkalic massif.

**Association:** Pyrophanite, pyrochlore, titanian lâvenite, loparite-(Ce), kopleskite, RE-apatite, liortdahlite, calcian seidozerite, leucopane, microcline.

**Distribution:** In the Burpala massif, about 120 km north of Lake Baikal, eastern Siberia, Russia.

**Name:** For its calcium content and close relation to catapleiite.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 72035.

**References:**

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