Bavenite

\[ \text{Ca}_4\text{Be}_2\text{Al}_2\text{Si}_9\text{O}_{26}(\text{OH})_2 \]

Crystal Data: Orthorhombic. Point Group: \text{mm2}. As radiating crystal groups, to 6 cm; as bladed crystals and rosettes of thin plates; also fine feltlike masses of needles, compact fibrous, chalklike massive. Twinning: On \{100\}.

Physical Properties: Cleavage: Perfect on \{001\}, fair on \{100\}. Hardness = 5.5–6
\[ \text{D(meas.)} = 2.71–2.74 \quad \text{D(calc.)} = 2.69–2.79 \] Weakly piezoelectric.

\( \beta = 1.579–1.585 \) \( \gamma = 1.583–1.593 \) \( 2V(\text{meas.}) = 22^\circ–58^\circ \)

Cell Data: Space Group: \text{Am}2a. \( a = 19.39(2) \quad b = 23.19(2) \quad c = 5.005(9) \quad Z = 4 \)

X-ray Powder Pattern: Baveno, Italy. 3.74 (100), 3.35 (90), 3.24 (80), 3.13 (70), 3.05 (70), 2.56 (60), 4.19 (50)

Chemistry:

\begin{tabular}{lrr}
 & (1) & (2) \\
\text{SiO}_2 & 57.64 & 57.83 \\
\text{Al}_2\text{O}_3 & 6.46 & 10.90 \\
\text{BeO} & 7.66 & 5.35 \\
\text{CaO} & 23.96 & 23.99 \\
\text{H}_2\text{O}^+ & 3.56 & \\
\text{H}_2\text{O}^- & 0.32 & 1.93 \\
\hline
Total & 99.60 & 100.00
\end{tabular}

(1) Mesa Grande district, California, USA; corresponds to \( \text{Ca}_{4.11}\text{Be}_{2.95}\text{Al}_{1.22}\text{Si}_{9.22}\text{O}_{26} \cdot 1.90\text{H}_2\text{O} \).
(2) \( \text{Ca}_4\text{Be}_2\text{Al}_2\text{Si}_9\text{O}_{26}(\text{OH})_2 \).

Occurrence: As druses in miarolitic cavities in granite and associated pegmatites, formed by alteration of beryl and other beryllium-bearing minerals. Also in hydrothermal veins and skarns.

Association: Beryl, helvite, phenakite, bertrandite, quartz, epidote, stilbite, albite, orthoclase, titanite, chlorite, clinozoisite, tremolite.

Distribution: From Baveno and Val d’Ossola, Piedmont, Italy. At Strzegom (Striegau), Silesia, Poland. From the Czech Republic, at Jeclov, Vežná, and near Drahonín. At Takelund, southeast of Halden, Østfold, Norway. In Switzerland, from the Muotta Nera, Piz Lai Blau, Val Naups and at Val Casaccia, Val Cristallina, Graubünden. In the USA, from the Himalaya mine, Mesa Grande district, and in the Rincon district, San Diego Co., California; at the Foote mine, Kings Mountain, Cleveland Co., North Carolina; from the Rutherford mine, Amelia, Amelia Co., Virginia; and elsewhere. In the Londonderry quarry, near Coolgardie, Western Australia. From Batystau, central Kazakhstan. In Russia, as large crystals at Akoudertia, Siberia; Malyshevo, Ural Mountains; and a number of other less-well-defined localities.

Name: For the original occurrence at Baveno, Italy.

Type Material: Municipal Museum of Natural History, Milan, Italy; Natural History Museum, Paris, France, 108.1881, 108.1882