Kettnerite CaBiO(CO$_3$)F

Crystal Data: Orthorhombic, pseudotetragonal by twinning. Point Group: 2/m 2/m 2/m. Crystal plates, to 0.3 mm, showing {001}, {111}, {10•10}; in spherical aggregates. Twinning: At a very fine scale.

Physical Properties: Hardness = “Soft”. D(meas.) = 5.80  D(calc.) = [5.85]

Optical Properties: Semitransparent. Color: Brown, brownish yellow, lemon-yellow. Optical Class: Biaxial or uniaxial. n = > 2.05  $\alpha =$ n.d.  $\beta =$ n.d.  $\gamma =$ n.d.  2V(meas.) = n.d.

Cell Data: Space Group: Pmmn. $a = 3.7976(2)$  $b = 3.7976(2)$  $c=13.569(4)$  Z = 2

X-ray Powder Pattern: Krupka, Czech Republic.

2.89 (10), 1.732 (9), 1.589 (9), 1.893 (8), 1.200 (8), 2.104 (7), 1.278 (6)

Chemistry:

\[
\begin{array}{ccc}
\text{Chemical} & \text{Formula} & \text{Abundance}\% \\
\hline
\text{CO}_2 & 12.6 & 12.79 \\
\text{Bi}_2\text{O}_3 & 67.9 & 67.71 \\
\text{CaO} & 8.3 & 8.15 \\
\text{CaF}_2 & 10.6 & 11.35 \\
\text{H}_2\text{O} & 0.5 & \\
\hline
\text{Total} & 99.9 & 100.00 \\
\end{array}
\]

(1) Krupka, Czech Republic; by microchemical analysis. (2) CaBiO(CO$_3$)F.

Occurrence: In a quartz vein cutting pegmatitic potassic feldspar (Krupka, Czech Republic).

Association: Fluorite, bismuth, bismuthinite, hematite, topaz (Krupka, Czech Republic); perite, hemimorphite, enbolithic, fluorite, chrysocolla, quartz (Blue Bell claims, California, USA).

Distribution: From Krupka, Krušně hory Mountains, and at Jáchymov (Joachimsthal), Czech Republic. From Niederschlema and from the Waldschacht, near Schneeberg, Saxony, and in the Clara mine, near Oberwolfach, Black Forest, Germany. In the USA, from near Bowie, Cochise Co., Arizona; at the Apache mine, Hidalgo Co., New Mexico; from the Blue Bell claims, near Baker, San Bernardino Co., California. At Kudul, Tajikistan.

Name: Honoring Radim Kettner (1891–1968), Professor of Geology, Charles University, Czech Republic.

Type Material: National Museum, Prague, Czech Republic, 43298.