Agaite

\[ \text{Pb}_3\text{Cu}^{2+}\text{Te}^{6+}\text{O}_5(\text{OH})_2(\text{CO}_3) \]

Crystal Data: Orthorhombic.  \textit{Point Group}: mm2.  As blades flattened on \{010\} and probably elongated along [001], to 200 \(\mu\)m.

Physical Properties:  \textit{Cleavage}: Perfect on \{010\}.  \textit{Tenacity}: Brittle.  \textit{Fracture}: Irregular.
Hardness = 2-3  \(D(\text{meas.}) = \text{n.d.} \)  \(D(\text{calc.}) = 6.987 \)  Likely soluble in dilute HCl.

\(2\nu(\text{meas.}) = 34(5)^\circ \)  \textit{Orientation}: \(X = b, Y = c, Z = a\).  \textit{Pleochroism}: \(X = \text{pale blue}, Y \text{ and } Z = \text{blue}\).  \textit{Absorption}: \(X < Y = Z\).

Cell Data:  \textit{Space Group}: Pca\(_2_1\).  \(a = 10.6522(7) \quad b = 9.1630(5) \quad c = 9.6011(7) \quad Z = 4\)

X-ray Powder Pattern: Aga mine, Otto Mountain, near Baker, California, USA.
3.303 (100), 2.7472 (68), 1.7468 (40), 4.26 (28), 2.0814 (21), 2.0306 (17), 4.165 (14)

Chemistry:
\[
\begin{array}{ccc}
\text{PbO} & 65.91 & 67.86 \\
\text{CuO} & 7.75 & 8.06 \\
\text{TeO}_3 & 17.41 & 17.80 \\
\text{CO}_2 & [4.33] & 4.46 \\
\text{H}_2\text{O} & [1.78] & 1.83 \\
\text{Total} & 97.18 & 100.00 \\
\end{array}
\]

(1) Aga mine, Otto Mountain, near Baker, California, USA; average of 4 electron microprobe analyses, low analytical total ascribed to electron beam damage, \(\text{H}_2\text{O}\) and \(\text{CO}_2\) calculated from stoichiometry; corresponds to \(\text{Pb}_{3.00}\text{Cu}^{2+}_{0.99}\text{Te}^{6+}_{1.01}\text{O}_5(\text{OH})_2(\text{CO}_3)\).  (2) \(\text{Pb}_3\text{Cu}^{2+}\text{Te}^{6+}\text{O}_5(\text{OH})_2(\text{CO}_3)\).

Occurrence: A secondary phase formed by partial oxidation of tellurides, chalcopyrite and galena in quartz veins.

Association: Cerussite, Br-rich chlorargyrite, chrysocolla, goethite, khinite, markcooperite, muscovite, phosphohedyphane, timroseite, wulfenite.

Distribution: From the Aga mine, Otto Mountain, near Baker, California, USA.

Name: For the mine from which the first specimens were collected and for A.G. Andrews, from whose initials the name of the mine is derived.

Type Material: Natural History Museum of Los Angeles County, Los Angeles, California, USA (63590).