Davidlloydite

**Zn\(_3\)(AsO\(_4\))\(_2\)·4H\(_2\)O**

**Crystal Data:** Triclinic. *Point Group:* \(\overline{1}\). As elongated prisms (~10:1 length-to-width ratio) flattened on \{010\}, to 100 \(\mu\)m; as aggregates to 500 \(\mu\)m of subparallel to slightly diverging prisms.

**Physical Properties:** *Cleavage:* Distinct on \{010\}. *Tenacity:* Brittle. *Fracture:* Irregular to hackly. Hardness = 3-4 \(D\) (meas.) = n.d. \(D\) (calc.) = 3.661 Nonfluorescent.


*Optical Class:* Biaxial (-). \(\alpha = 1.671(2)\) \(\beta = 1.687(2)\) \(\gamma = 1.695(2)\) 2\(V\) (meas.) = 65.4(6)° 2\(V\) (calc.) = 70° *Pleochroism:* None. *Dispersion:* Weak, \(r < v\).

**Cell Data:** *Space Group:* \(P\overline{1}\). \(a = 5.9756(4)\) \(b = 7.6002(5)\) \(c = 5.4471(4)\) \(\alpha = 84.2892(9)°\) \(\beta = 90.4920(9)°\) \(\gamma = 87.9958(9)°\) \(Z = 1\)

**X-Ray Diffraction Pattern:** Tsumeb mine, Otjikoto (Oshikoto) region, Namibia. 4.620 (100), 7.526 (71), 2.974 (49), 3.253 (40), 2.701 (39), 5.409 (37), 2.810 (37)

**Chemistry:**

\[
\begin{align*}
\text{As}_2\text{O}_5 & \quad 43.03 \\
\text{ZnO} & \quad 37.95 \\
\text{CuO} & \quad 5.65 \\
\text{H}_2\text{O} & \quad [13.27] \\
\text{Total} & \quad 99.90
\end{align*}
\]

(1) Tsumeb mine, Otjikoto region, Namibia; average electron microprobe analysis supplemented by Raman spectroscopy, \(\text{H}_2\text{O}\) calculated; corresponds to \((\text{Zn}_{2.53}\text{Cu}_{0.39})\text{As}_2\text{O}_8\) \((\text{H}_2\text{O})_4\).

**Occurrence:** Secondary in the oxidation zone of a Cu-Pb-Zn mineral deposit.

**Association:** Calcioandyrobertsite, stranskiite, geminite, adamite-olivenite.

**Distribution:** From the Tsumeb mine, Otjikoto (Oshikoto) region, Namibia.

**Name:** Honors David Lloyd (b. 1943), a British mineral collector who was a prime mover in the re-opening of the Tsumeb mine for mineral collecting, and for significant contributions to mineralogy through extensive field collecting at many localities in the British Isles.

**Type Material:** Department of Natural History, Royal Ontario Museum, Toronto, Canada (M56120).