Davidlloydite $Zn_3(AsO_4)_2 \cdot 4H_2O$

Crystal Data: Triclinic. *Point Group*: $\bar{1}$. As elongated prisms (~10:1 length-to-width ratio) flattened on {010}, to 100 μm; as aggregates to 500 μm 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 Properties: [Transparent to translucent.] *Color*: Colorless. *Streak*: White. *Luster*: Vitreous to opalescent.
Optical Class: Biaxial (-). α = 1.671(2) β = 1.687(2) γ = 1.695(2) 2V(meas.) = 65.4(6)^o 2V(calc.) = 70^o *Pleochroism*: None. *Dispersion*: Weak, $r < v$.

Cell Data: *Space Group*: $P\bar{1}$. a = 5.9756(4) b = 7.6002(5) c = 5.4471(4) α = 84.2892(9)^o β = 90.4920(9)^o γ = 87.9958(9)^o 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:

	(1)
As_2O_5	43.03
ZnO	37.95
CuO	5.65
H_2O	[13.27]
Total	99.90

(1) Tsumeb mine, Otjikoto region, Namibia; average electron microprobe analysis supplemented by Raman spectroscopy, H_2O calculated; corresponds to $(Zn_{2.53}Cu_{0.39})_{\Sigma=2.92}As_{2.03}O_8(H_2O)_4$.

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).

References: (1) Hawthorne, F.C., M.A. Cooper, Y.A. Abdu, N.A. Ball, M.E. Back, and K.T. Tait (2012) Davidlloydite, ideally $Zn_3(AsO_4)_2(H_2O)_4$, a new arsenate mineral from the Tsumeb mine, Otjikoto (Oshikoto) region, Namibia: description and crystal structure. Mineral. Mag., 76, 45-57. (2) (2012) Amer. Mineral., 97, 1528 (abs. ref. 1).