

Crystal Data: Monoclinic. *Point Group:* $2/m$ or m . As slender prismatic crystals, slightly bent and twisted, elongated along [001], showing {100}, { $\bar{1}01$ }, {110}, { $\bar{1}11$ }, and others, to 1 cm. Crystals are typically composite, multiply terminated, in subparallel to radiating groups and dense aggregates.

Physical Properties: Hardness = 4.5 D(meas.) = 4.31(1) D(calc.) = 4.40

Optical Properties: Semitransparent. *Color:* White to colorless, pale blue in aggregates.

Streak: White. *Luster:* Vitreous to silky.

Optical Class: Biaxial (+). *Orientation:* $Y = b$; $Z \wedge c = 27^\circ$. *Dispersion:* $r \gg v$. $\alpha = 1.746(2)$
 $\beta = 1.748(2)$ $\gamma = 1.768(2)$ $2V(\text{meas.}) = 34(2)^\circ$ $2V(\text{calc.}) = 36^\circ$

Cell Data: *Space Group:* $C2/c$ or Cc . $a = 19.238(2)$ $b = 7.731(1)$ $c = 9.765(1)$
 $\beta = 104.47(1)^\circ$ $Z = 8$

X-ray Powder Pattern: Tsumeb, Namibia.

2.723 (10), 2.992 (9), 3.11 (8), 3.78 (7), 3.36 (6), 2.614 (6), 3.86 (5)

Chemistry:

	(1)	(2)
As ₂ O ₅	47.92	49.25
CuO	1.35	
ZnO	33.22	34.88
CaO	13.02	12.01
H ₂ O	4.0	3.86
Total	99.51	100.00

(1) Tsumeb, Namibia; by electron microprobe, H₂O by TGA; corresponds to Ca_{1.09}(Zn_{1.91}Cu_{0.08})_{Σ=1.99}(As_{0.98}O_{3.98})₂•1.04H₂O. (2) CaZn₂(AsO₄)₂•H₂O.

Occurrence: A rare secondary mineral in partly altered sulfide ore from a dolostone-hosted hydrothermal polymetallic ore deposit.

Association: Tennantite, chalcocite, mercurian silver, cuprite, cuprian adamite, cuprian austinite, conicalcrite, stranskiite, lavendulan, köttigite, tsumcorite, koritnigite, o'danielite.

Distribution: From Tsumeb, Namibia.

Name: To honor Prosper John Williams (1910–), of Toronto, Canada, South African-Canadian mineral dealer, supplier of many Tsumeb specimens.

Type Material: Royal Ontario Museum, Toronto, Canada, M35388, M35389, M35391; The Natural History Museum, London, England, 1978,19; National Museum of Natural History, Washington, D.C., USA, 143732, 143733.

References: (1) Gait, R.I., B.D. Sturman, and P.J. Dunn (1979) Prosperite, HCaZn₂(AsO₄)₂(OH), a new mineral from Tsumeb, South West Africa (Namibia). *Can. Mineral.*, 17, 87–92. (2) (1980) *Amer. Mineral.*, 65, 208 (abs. ref. 1). (3) Keller, P., H. Riffel, and H. Hess (1982) Die Kristallstruktur von Prosperit, Ca₂Zn₄[H₂O/(AsO₄)₄]. *Zeits. Krist.*, 158, 33–42 (in German with English abs.).