

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. As a polycrystalline grain to 1 mm.

Physical Properties: *Cleavage:* Perfect on {010}, good on {100}, poor on 01} (by analogy with hopeite). *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 3 D(meas.) = n.d. D(calc.) = 3.42

Optical Properties: Transparent. *Color:* Colorless to blue, colorless in transmitted light.

Streak: White. *Luster:* Vitreous.

Optical Class: Biaxial (-). $\alpha = 1.598(2)$ $\beta = 1.606(2)$ $\gamma = 1.613(2)$ $2V(\text{meas.}) = \text{n.d.}$ $2V(\text{calc.}) = 86^\circ$

Cell Data: *Space Group:* $Pnma$. $a = 10.804(2)$ $b = 19.003(4)$ $c = 5.112(1)$ $Z = 4$

X-ray Powder Pattern: Calculated pattern.

9.502 (100), 2.926 (95), 4.937 (50), 4.110 (48), 5.196 (31), 3.567 (31), 4.490 (28)

Chemistry:	(1)	(2)
ZnO	44.92	44.72
Fe ₂ O ₃	0.92	
MnO	0.51	
MgO	0.20	
CuO	0.02	
As ₂ O ₅	45.84	42.09
H ₂ O	[14.21]	13.19
Total	106.62	100.00

(1) Tsumeb, Namibia; average of 8 electron microprobe analyses; H₂O calculated and confirmed by Raman spectroscopy, high Total attributed to dehydration under the electron beam; corresponding to $(\text{Zn}_{2.80}\text{Fe}_{0.06}\text{Mn}_{0.04}\text{Mg}_{0.03})_{\Sigma=2.93}(\text{As}_{1.01}\text{O}_4)_2 \cdot 4\text{H}_2\text{O}$. (2) $\text{Zn}_3(\text{AsO}_4)_2 \cdot 4\text{H}_2\text{O}$.

Occurrence: A rare secondary mineral formed by alteration of tennantite-rich ore in the oxidized zone of a dolostone-hosted, polymetallic, hydrothermal ore deposit.

Association: Köttigite, adamite, leiteite, schneiderhöhnite.

Distribution: Tsumeb, Namibia.

Name: For the relationship to *hopeite* [$\text{Zn}_3(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}$], as its arsenate analogue.

Type Material: Natural History Museum, Vienna, Austria (N 8167).

References: (1) Neuhold, F., U. Kolitsch, H.-J. Bernhardt, and C.L. Lengauer (2012) Arsenohopeite, a new zinc arsenate mineral from the Tsumeb mine, Namibia. *Mineral. Mag.*, 76, 603-612. (2) (2012) *Amer. Mineral.*, 97, 1524 (abs. ref. 1).