Hermannroseite $CaCu(PO_4,AsO_4)(OH)$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As masses of grains with mean size of 0.7 μm.

Physical Properties: *Cleavage*: None. *Fracture*: n.d. *Tenacity*: n.d. *Hardness* = n.d. D(meas.) = n.d. D(calc.) = 4.08

Optical Properties: Transparent. *Color*: Grassy-green. *Streak*: Pale green. *Luster*: Vitreous. *Optical Class*: Biaxial. [By analogy to conichalcite.] *n*(calc.) = 1.77 *Pleochroism*: None observed.

Cell Data: *Space Group*: $P2_12_12_1$. a = 9.3387(7) b = 5.5032(4) c = 9.7957(8) Z = 4

X-ray Powder Pattern: Tsumeb Mine, Tsumeb, Namibia.
2.808 (100), 2.571 (73), 3.092 (63), 5.710 (56), 4.057 (37), 2.525 (36), 2.854 (29)

Chemistry:

	(1)
CaO	22.80
CuO	34.52
ZnO	0.58
P_2O_5	15.16
As_2O_5	21.88
V_2O_5	1.02
H_2O	[4.04]
Total	100.00

(1) Tsumeb Mine, Tsumeb, Namibia; average of 100 electron microprobe analyses, H_2O by difference; corresponding to $Ca_{0.96}(Cu_{1.03}Zn_{0.02})_{\Sigma=1.05}(P_{0.51}As_{0.45}V_{0.03})_{\Sigma=0.99}O_{3.94}(OH)_{1.06}$.

Mineral Group: Adelite-descloizite group.

Polymorphism & Series: The phosphate analog of conichalcite.

Occurrence: A secondary mineral in an oxidize, polymetallic sulfide deposit.

Association: Conichalcite, whitlockite, pseudomalachite, hydroxylapatite.

Distribution: From level 28, East 49 stope, 2 oxidation zone, Tsumeb mine, Tsumeb, Namibia.

Name: Honors Professor Hermann Rose (1883-1976), honorary member of the German Mineralogical Society since 1973 and head of the Mineralogical Institute, University of Hamburg, Germany (1922-1954).

Type Material: Mineralogical Museum, University of Hamburg, Germany (TS 637).

References: (1) Schlüter, J., D. Pohl, and G. Gebhard (2011) The new mineral hermannroseite, $CaCu(PO_4,AsO_4)(OH)$, the phosphate analogue of conichalcite, from Tsumeb, Namibia. N. Jb. Mineral. Abh., 188, 135-140. (2) (2011) Amer. Mineral., 96, 1911 (abs. ref. 1).