Vanackerite $Pb_4Cd(AsO_4)_3Cl$

Crystal Data: Hexagonal. *Point Group*: $\bar{3}$. Tabular pseudohexagonal crystals, to 5 mm, display {$01\bar{1}\ 0$}, {$11\bar{2}\ 1$}, and {$10\bar{1}\ 1$} and form random groups and rosettes.

Physical Properties: *Cleavage*: n.d. *Fracture*: n.d. *Tenacity*: n.d. Hardness = ~ 4
VHN = 270 (25 g load). D(meas.) = n.d. D(calc.) = 7.28

Optical Properties: Translucent. *Color*: Light yellow. *Streak*: White. *Luster*: Adamantine.
Optical Class: *n*(calc.) = 2.04 Orange fluorescence in UV.

Cell Data: *Space Group*: $P\bar{3}$. a = 10.0279(3) c = 7.2965(2) Z = 2

X-ray Powder Pattern: Tsumeb mine, Tsumeb, Namibia.
2.982 (100), 3.290 (34), 2.067 (16), 1.944 (11), 4.140 (10), 1.635(10), 1.523(10)

Chemistry:	(1)
PbO	64.44
CdO	8.82
As_2O_5	23.59
Cl	1.51
$-O = Cl_2$	0.34
Total	98.02

(1) Tsumeb mine, Tsumeb, Namibia; average of 45 electron microprobe analyses supplemented by Raman spectroscopy; corresponds to $Pb_{4.10}Cd_{0.98}As_{2.92}O_{12.07}Cl_{0.61}$.

Mineral Group: Apatite supergroup.

Occurrence: A secondary mineral in the oxidized zone of a dolostone-hosted, polymetallic, hydrothermal ore deposit.

Association: Thometzekite, anglesite, gypsum.

Distribution: From the second oxidation zone, Tsumeb mine, Tsumeb, Namibia.

Name: Honors Georges Vanacker (1923-1992) of Bruges, Belgium, whose systematic mineral collection includes many specimens from the Tsumeb deposit, in one of which, vanackerite was first identified. His collection was donated to the Natural Sciences Institute, Brussels, Belgium.

Type Material: Mineralogical Museum of the University of Hamburg, Germany (TS 706).

References: (1) Schlüter, J., T. Malcherek and G. Gebhard (2016) Vanackerite, a new lead cadmium arsenate of the apatite supergroup from Tsumeb, Namibia. Neues Jahrb. Mineral., Abh. (J. Min. Geochem.), 193(1), 79-86. (2) (2016) Amer. Mineral., 101, 2573 (abs. ref. 1).