Vanackerite

$\text{Pb}_4\text{Cd(AsO}_4\text{)}_3\text{Cl}$

**Crystal Data:** Hexagonal.  *Point Group:* 3.  Tabular pseudohexagonal crystals, to 5 mm, display {011 0}, {112 1}, and {101 1} and form random groups and rosettes.

  VHN = 270 (25 g load).  *D*(meas.) = n.d.  *D*(calc.) = 7.28


**Cell Data:** *Space Group:* $P\overline{3}$.  
$a$ = 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:**

<table>
<thead>
<tr>
<th>Element</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>PbO</td>
<td>64.44</td>
</tr>
<tr>
<td>CdO</td>
<td>8.82</td>
</tr>
<tr>
<td>As$_2$O$_5$</td>
<td>23.59</td>
</tr>
<tr>
<td>Cl</td>
<td>1.51</td>
</tr>
<tr>
<td>$-\text{O} = \text{Cl}_2$</td>
<td>0.34</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>98.02</strong></td>
</tr>
</tbody>
</table>

(1) Tsumeb mine, Tsumeb, Namibia; average of 45 electron microprobe analyses supplemented by Raman spectroscopy; corresponds to $\text{Pb}_{4.10}\text{Cd}_{0.98}\text{As}_{2.92}\text{O}_{12.07}\text{Cl}_{0.61}$.

**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:**