Reinerite

\[ \text{Zn}_3(\text{As}^{3+}\text{O}_3)_2 \]

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Crystal Data: Orthorhombic. Point Group: \( 2/m \ 2/m \ 2/m \). Crystals are rough, pseudohexagonal, showing \{010\}, \{110\}, \{001\}, and \{012\}, striated \parallel \{001\}, to 4.7 cm.

Physical Properties: Cleavage: On \{110\}, \{011\}, \{111\}, good. Hardness = 5–5.5

\( \text{D(meas.)} = 4.270 \quad \text{D(calc.)} = 4.283 \)


Optical Class: Biaxial (-). \( \alpha = 1.749 \quad \beta = 1.790 \quad \gamma = 1.821 \)

Cell Data: Space Group: \( \text{Pbam} \). \( a = 6.0883(2) \quad b = 14.3941(5) \quad c = 7.8022(2) \quad Z = 4 \)

X-ray Powder Pattern: Tsumeb, Namibia.

3.9954 (1000), 2.6455 (290), 1.5488 (191), 3.2025 (187), 2.7826 (176), 2.6023 (145), 3.3942 (143)

Chemistry:

\[
\begin{array}{c|c|c}
& (1) & (2) \\
\hline
\text{As}_2\text{O}_3 & 43.83 & 44.76 \\
\text{ZnO} & 56.01 & 55.24 \\
\text{Total} & 99.84 & 100.00 \\
\end{array}
\]

(1) Tsumeb, Namibia; by electron microprobe. (2) \( \text{Zn}_3(\text{As}^{3+}\text{O}_3)_2 \).

Occurrence: Extremely rare in a deep oxidation zone in a dolostone-hosted hydrothermal polymetallic ore deposit.

Association: Chalcocite, bornite, willemite, smithsonite, hydrozincite, hemimorphite, adamite, olivenite, gebhardite.

Distribution: From Tsumeb, Namibia.

Name: To honor Willy Reiner (1895–1965), Senior Chemist, Tsumeb Corporation, Tsumeb, Namibia, who analyzed this material.

Type Material: n.d.


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