Otjisumeite $PbGe_4O_9$

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Crystal Data: Triclinic, pseudohexagonal. Point Group: 1 or $\overline{1}$. In sprays of subparallel pseudohexagonal crystals, elongated along [001], to 1 mm; may be fibrous.

Physical Properties: Cleavage: $\{001\}$, interrupted. Hardness = ~ 3 D(meas.) = n.d. D(calc.) = 5.77

Optical Properties: Transparent to translucent. *Color:* Colorless to white. *Streak:* White. *Luster:* Greasy to subadamantine.

Optical Class: Biaxial (+). Orientation: $X \wedge c = 3^{\circ}-5^{\circ}$. $\alpha = 1.920(5)$ $\beta = [1.922]$ $\gamma = 1.943(5)$ $2V(\text{meas.}) = 20(5)^{\circ}$

Cell Data: Space Group: P1 or P $\overline{1}$. a = 6.945(12) b = 6.958(11) c = 9.279(6) $\alpha = 102.94(10)^{\circ}$ $\beta = 103.05(11)^{\circ}$ $\gamma = 114.77(12)^{\circ}$ Z = 2

X-ray Powder Pattern: Tsumeb, Namibia. 2.95 (10), 3.41 (5), 2.22 (5), 4.20 (4), 1.847 (4), 1.782 (4), 5.87 (3)

Chemistry:

$$\begin{array}{c} & (1) \\ \text{GeO}_2 & 64.7 \\ \text{PbO} & 35.5 \\ \hline \text{Total} & 100.2 \\ \end{array}$$

(1) Tsumeb, Namibia; by electron microprobe, corresponding to Pb_{1.03}Ge_{3.99}O₉.

Occurrence: In cavities in oxidized germanium-bearing sulfides in a dolostone-hosted hydrothermal polymetallic ore deposit.

Association: Tennantite, germanite, reniérite, chalcocite, schaurteite, siderite, calcite, quartz, gypsum.

Distribution: From Tsumeb, Namibia.

Name: From Otjisume, the Herero name for Tsumeb, Namibia.

Type Material: University of Stuttgart, Stuttgart, Germany, NM06; National Museum of Natural History, Washington, D.C., USA, 149053.

References: (1) Keller, P., H. Hess, and P.J. Dunn (1981) Otjisumeit, $PbGe_4O_9$, ein neues Mineral aus Tsumeb, Namibia. Neues Jahrb. Mineral., Monatsh., 49–55 (in German with English abs.). (2) (1987) Amer. Mineral., 72, 1026–1027 (abs. ref. 1).