

**Crystal Data:** Orthorhombic. *Point Group:* n.d. Crystals platy to very thin prismatic, partly hollow, elongated on [001], to 20  $\mu\text{m}$ . Forms are major {100}, very thin {010}, rounded {011}, minor very thin rounded {001}, with growth steps on {100}.

**Physical Properties:** *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Uneven. Hardness = Soft.  $D(\text{meas.}) = \text{n.d.}$   $D(\text{calc.}) = 3.639$

**Optical Properties:** Transparent to translucent. *Color:* Yellow-tan to dirty brown-yellow (aggregates), very pale yellow in transmitted light. *Streak:* Brownish yellow. *Luster:* Vitreous. *Optical Class:* Biaxial (+). Two indices of refraction  $> 1.80$ .  $2V(\text{meas.}) = \text{Large}$ . *Pleochroism:* None. *Birefringence:* Low. *Anisotropism:* Moderate.

**Cell Data:** Space Group: n.d. (*P* lattice)  $a = 8.302(4)$   $b = 9.718(4)$   $c = 4.527(2)$   $Z = 2$

**X-ray Powder Pattern:** Tsumeb mine, Tsumeb, Namibia.

3.681 (100), 2.921 (100), 2.403 (90), 1.646 (80) 3.121 (60b), 1.624 (50), 4.105 (40), 2.512 (40)

<b>Chemistry:</b>	(1)
CaO	0.06
Fe <sub>2</sub> O <sub>3</sub>	18.54
Ga <sub>2</sub> O <sub>3</sub>	1.01
GeO <sub>2</sub>	77.75
H <sub>2</sub> O	2.64
Total	100.00

(1) Tsumeb mine, Tsumeb, Namibia; average of 9 electron microprobe analyses, H<sub>2</sub>O calculated by difference, OH<sup>-</sup> confirmed by IR spectroscopy, Fe<sup>3+</sup> by XAS; corresponds to  $(\text{Fe}^{3+}_{0.93}\text{Ga}^{3+}_{0.04})_{\Sigma=0.97}\text{Ge}^{4+}_{2.98}\text{O}_{6.90}(\text{OH})_{1.17}$ .

**Occurrence:** A secondary mineral formed by groundwater in a vug on a single specimen of renierite-germanite-tennantite ore from the oxidation zone above a polymetallic sulfide mineral deposit.

**Association:** Renierite, germanite, tennantite.

**Distribution:** From the Tsumeb mine, Tsumeb, Namibia.

**Name:** Honors Professor Walter Hans Eysel (1935-1999) Professor of Crystallography at the Ruprecht-Karls-Universität, Heidelberg, Germany, for his studies of germinates and his contributions to the X-ray Powder Diffraction File.

**Type Material:** Systematic Reference Series, Geological Survey of Canada, Ottawa, (68093).

**References:** (1) Roberts, A.C., T.M. Seward, E. Reusser, G.J.C. Carpenter, J.D. Grice, S.M. Clark, and M.A. Marcus (2004) Eyselite,  $\text{Fe}^{3+}\text{Ge}^{4+}_3\text{O}_7(\text{OH})$ , a new mineral species from Tsumeb, Namibia. *Can. Mineral.*, 42, 1771-1776. (2) (2005) *Amer. Mineral.*, 90, 1227 (abs. ref. 1).