

**Crystal Data:** Isometric. *Point Group:* n.d. As anhedral, elongate to elliptical grains, to 100 μm.

**Physical Properties:** *Cleavage:* None. *Fracture:* Irregular to conchoidal. *Tenacity:* Brittle. Hardness = 4-5 VHN = 268-307 (25 g load). D(meas.) = n.d. D(calc.) = 5.239

**Optical Properties:** Opaque. *Color:* Black; pale bluish-gray in reflected light. *Streak:* Black. *Luster:* Metallic. *Birefringence:* None. *Pleochroism:* None. *Internal reflections:* None observed. *Optical Class:* Isotropic.

R<sub>air</sub>-R<sub>oil</sub>: (400) 28.0-13.5, (420) 27.6-13.3, (440) 27.1-12.8, (460) 26.7-12.3, (480) 25.9-11.5, (500) 25.0-10.8, (520) 24.2-10.1, (540) 23.5-9.5, (560) 22.8-9.1, (580) 22.3-8.8, (600) 22.1-8.6, (620) 21.8-8.5, (640) 21.6-8.5, (660) 21.5-8.5, (680) 21.5-8.4, (700) 21.5-8.4

**Cell Data:** *Space Group:* *Fm*3*m*, *F*432, or *F*4̄3*m*. *a* = 5.337(1) *Z* = 1  
Metastable and highly disordered; the ordered equivalent would be Cu<sub>10</sub>GeS<sub>8</sub> with *a* = 2 × 5.337 Å.

**X-ray Powder Pattern:** Tsumeb mine, Namibia. (Although matching the pattern for synthetic material, these 4 lines are not definitive as they match strong lines for reinerite, germanocolusite, and germanite).

3.053 (100), 1.869 (90), 1.595 (30), 2.639 (10)

Chemistry:	(1)
Cu	63.10
Fe	1.66
Zn	0.55
Ge	5.67
As	1.50
Ga	0.36
V	0.05
<u>S</u>	<u>26.63</u>
Total	99.60

(1) Tsumeb mine, Namibia; average of 8 electron microprobe analyses, corresponding to (Cu<sub>4.782</sub>Fe<sub>0.143</sub>Zn<sub>0.041</sub>Ga<sub>0.025</sub>V<sub>0.005</sub>)<sub>Σ=4.996</sub>(Ge<sub>0.382</sub>As<sub>0.096</sub>)<sub>Σ=0.478</sub>S<sub>4</sub>.

**Occurrence:** In a highly oxidized, polymetallic, fractured and brecciated dolomite and sandstone pipe.

**Association:** Reinerite, tennantite, gallite, chalcocite.

**Distribution:** Tsumeb mine, Namibia.

**Name:** Honors Lauriston (Larry) Derwent Calvert (1924–1993) of the National Research Council, Ottawa, Canada for his studies of metallic phases and contributions to the Powder Diffraction File (ICDD).

**Type Material:** Canadian Museum of Nature, Ottawa (CMNMC 85731), and the Natural History Museum, London, England (BM 2004, 78).

**References:** (1) Jambor, J.L., A.C. Roberts, L.A. Groat, C.J. Stanley, A.J. Criddle, and M.N. Feinglos (2007) Calvertite, Cu<sub>5</sub>Ge<sub>0.5</sub>S<sub>4</sub>, a new mineral species from Tsumeb, Namibia. *Can. Mineral.*, 45, 1519–1523. (2) (2008) *Amer. Mineral.*, 93, 1686 (abs. ref. 1).