

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As fibers to 50 μm in crusts, individual fibers are wedge-shaped aggregates of lamellae on {110}, and in hemispherical aggregates, to 200 μm.

Physical Properties: *Cleavage:* None. *Fracture:* Irregular. *Tenacity:* Brittle.
D(meas.) = n.d. D(calc.) = 4.069 *Hardness* = 5.5-6.5

Optical Properties: Translucent. *Color:* Beige to white. *Streak:* White. *Luster:* Greasy.
Optical Class: n.d. *n*(calc.) = 1.74

Cell Data: *Space Group:* Pbnm. *a* = 4.809(2) *b* = 9.111(3) *c* = 8.536(3) *Z* = 4

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

3.016 (100), 3.811 (78), 3.315 (48), 2.247 (38), 1.398 (29), 2.417 (27), 2.464 (24)

Chemistry:	(1)
GeO ₂	38.32
SiO ₂	0.33
Al ₂ O ₃	44.34
Ga ₂ O ₃	4.14
TiO ₂	0.12
Fe ₂ O ₃	0.43
CuO	0.05
ZnO	0.70
Sb ₂ O ₃	0.33
As ₂ O ₃	1.54
MgO	0.28
Na ₂ O	0.12
F	9.10
H ₂ O	[3.51]
-O=F	3.83
Total	99.48

(1) Tsumeb mine, Tsumeb, Namibia; average of 636 electron microprobe analyses supplemented by FTIR, PIXE and INAA, H₂O calculated and confirmed by spectroscopy; corresponding to (Al_{1.860}Ga_{0.102}As³⁺_{0.036}Zn_{0.020}Mg_{0.016}Fe³⁺_{0.012}Na_{0.009}Sb³⁺_{0.005}Ti_{0.003}Cu_{0.001})_{Σ=2.064} (Ge_{0.844}Al_{0.143}Si_{0.013})_{Σ=1.000}O₄(F_{1.103}OH_{0.897})_{Σ=2.000}.

Occurrence: From vugs in tennantite-chalcocite-galena-germanite ore in a complex polymetallic hydrothermal sulfide deposit.

Association: Quartz, wulfenite, anglesite, graphite (Tsumeb mine); schneiderhöhnite, stottite (Tsumeb mine 29th level).

Distribution: From the Tsumeb mine, Tsumeb, Otjikoto Region, Namibia.

Name: Honors Friedrich Wilhelm Kriesel who was the chief chemist at the Tsumeb mine laboratory around 1920.

Type Material: Mineralogical Museum, University of Hamburg, Germany.

References: (1) Schlüter, J., T. Geisler, D. Pohl, and T. Stephan (2010) Krieselite, Al₂GeO₄(F,OH)₂: A new mineral from the Tsumeb mine, Namibia, representing the Ge analogue of topaz. *Neus Jb. Mineral. Abh.*, 187, 33-40. (2) (2011) *Amer. Mineral.*, 96, 1656 (abs. ref. 1).