

Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Crystals rare, to 1 mm, showing {100}, {010}, {001}, {011}, strongly zoned with talmessite; as polycrystalline coatings.

Physical Properties: *Cleavage:* {010}, {001}, and {011}, probable, equally good.
Hardness = ~5 D(meas.) = 3.81(5) D(calc.) = 3.82

Optical Properties: Semitransparent. *Color:* White to colorless. *Streak:* White.
Luster: Vitreous.

Optical Class: Biaxial (–) or (+). *Orientation:* X (28°, 32°); Y (185°, 60°); Z (–79°, 80°) using (φ, ρ). α = 1.713(2) β = 1.730(2) γ = 1.748(2) 2V(meas.) = 88(2)° 2V(calc.) = 89°

Cell Data: *Space Group:* $P\bar{1}$. *a* = 5.899(1) *b* = 6.978(1) *c* = 5.755(1) α = 97.41(3)°
β = 109.08(3)° γ = 108.09(3)° Z = 1

X-ray Powder Pattern: Tsumeb, Namibia.

2.781 (100), 3.080 (80), 2.750 (70), 1.721 (60), 3.350 (50), 3.208 (50), 5.05 (40)

Chemistry:	(1)	(2)
As ₂ O ₅	50.2	50.03
FeO	0.2	
MnO	0.2	
ZnO	15.3	17.72
MgO	1.2	
CaO	24.2	24.41
H ₂ O	7.8	7.84
Total	99.1	100.00

(1) Tsumeb, Namibia; by electron microprobe, H₂O by DTA-TGA; corresponds to Ca_{1.98}(Zn_{0.86}Mg_{0.14}Fe_{0.01}Mn_{0.01})_{Σ=1.02}(AsO₄)₂•2H₂O. (2) Ca₂Zn(AsO₄)₂•2H₂O.

Polymorphism & Series: Dimorphous with zincroselite; forms a series with talmessite.

Mineral Group: Fairfieldite group.

Occurrence: A very rare mineral from a deep oxidized zone in a dolostone-hosted, hydrothermal, polymetallic ore deposit.

Association: Talnessite, prosperite, adamite, conichalcite, austinite, barite, quartz, chalcocite.

Distribution: From Tsumeb, Namibia.

Name: In honor of Dr. Robert Irwin Gait (1938–), South African-Canadian Curator of Mineralogy, Royal Ontario Museum, Toronto, Canada.

Type Material: Royal Ontario Museum, Toronto, Canada, M35388; National Museum of Natural History, Washington, D.C., USA, 144799.

References: (1) Sturman, B.D. and P.J. Dunn (1980) Gaitite, H₂Ca₂Zn(AsO₄)₂(OH)₂, a new mineral from Tsumeb, Namibia (South West Africa). Can. Mineral., 18, 197-200. (2) (1981) Amer. Mineral., 66, 1274 (abs. ref. 1). (3) Keller, P., H. Hess, and H. Riffel (1981) Die Kristallstruktur von zwei neuen Calcium-Zink-Arsenat-Mineralen von Tsumeb/Namibia. Zeits. Krist., 156, 70-71 (in German). (4) Keller, P., F. Lissner, and T. Schleid (2004) The crystal structures of zincroselite and gaitite: Two natural polymorphs of Ca₂Zn[AsO₄]₂•2H₂O from Tsumeb, Namibia. Eur. J. Mineral., 16, 353-359.