

Zincgartrellite

Pb(Zn, Fe, Cu)₂(AsO₄)₂(H₂O, OH)₂

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Crystal Data: Monoclinic. *Point Group:* 2/m. Crystals lathlike, elongated and striated along [001], with minor {hk0} and {hkl} forms, to 2 cm, in subparallel aggregates.

Twinning: Common on {100}.

Physical Properties: *Cleavage:* {010}, good to perfect; {001}, traces. *Tenacity:* Brittle. Hardness = ~3 D(meas.) = 3.75 D(calc.) = 3.77

Optical Properties: Transparent to translucent. *Color:* Colorless, white. *Luster:* Vitreous. *Optical Class:* Biaxial (+). *Orientation:* Y = b; X ∧ c = 0°–5°. *Dispersion:* r ≪ v, strong.

α = 1.703(3) β = 1.710(4) γ = 1.720(3) 2V(meas.) = 50° 2V(calc.) = 57°

Cell Data: *Space Group:* P2₁/c. a = 5.832(2) b = 12.889(4) c = 5.644(2)
β = 107.72(3)° Z = 2

X-ray Powder Pattern: Tsumeb, Namibia.

3.00 (10), 3.22 (8), 2.78 (8), 5.10 (6), 6.44 (5), 3.40 (5), 3.36 (5)

Chemistry:

	(1)	(2)
As ₂ O ₅	49.3	50.03
FeO	0.2	
MnO	0.9	
ZnO	15.9	17.72
MgO	0.4	
CaO	25.0	24.41
H ₂ O	7.7	7.84
Total	99.4	100.00

(1) Tsumeb, Namibia; by electron microprobe, total Fe as FeO, total Mn as MnO, H₂O by LOI; corresponds to Ca_{2.06}(Zn_{0.90}Mn_{0.06}Mg_{0.05}Fe_{0.01})_{Σ=1.02}(AsO₄)_{1.98} • 1.97H₂O.

(2) Ca₂Zn(AsO₄)₂ • 2H₂O.

Polymorphism & Series: Dimorphous with gaitite.

Mineral Group: Roselite group.

Occurrence: A rare secondary mineral in an oxidized zone of a dolostone-hosted hydrothermal polymetallic ore deposit.

Association: Tsumcorite, stranskiite, leiteite, quartz, tennantite.

Distribution: From Tsumeb, Namibia.

Name: For its content of *zinc* and relation to *roselite*.

Type Material: University of Stuttgart, Stuttgart, Germany, NM16; National Museum of Natural History, Washington, D.C., USA, 163340.

References: (1) Keller, P., J. Innes, and P.J. Dunn (1986) Zincroselite, Ca₂Zn(AsO₄)₂ • 2H₂O, a new mineral from Tsumeb, Namibia. Neues Jahrb. Mineral., Monatsh., 523–527. (2) (1988) Amer. Mineral., 73, 932 (abs. ref. 1).