

Galloplumbogummite**Pb(Ga,Al)_{3-x}Ge_xH_{1-x}(PO₄)₂(OH)₆ 0 ≤ x ≤ 1**

Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$. As rhombohedral crystals, to 0.15 mm.

Physical Properties: *Cleavage:* n.d. *Fracture:* n.d. *Tenacity:* n.d. *Hardness* = n.d.
D(meas.) = n.d. D(calc.) = 4.62

Optical Properties: Transparent. *Color:* Colorless, frosted white. *Streak:* White. *Luster:* n.d.
Optical Class: Uniaxial (+). *n*(calc.) = 1.82

Cell Data: *Space Group:* $R\bar{3} m$. *a* = 7.083(5) *c* = 16.742(3) *Z* = 3

X-ray Powder Pattern: Tsumeb mine, Tsumeb, Namibia.
5.730 (100), 2.983 (78), 3.528 (24), 2.225 (19), 1.912 (17), 1.768 (15), 2.466 (12)

Chemistry:	(1)
PbO	34.45
CaO	0.42
Al ₂ O ₃	10.19
Ga ₂ O ₃	19.64
GeO ₂	5.93
Fe ₂ O ₃	0.20
P ₂ O ₅	20.04
SO ₃	1.71
H ₂ O	[7.42]
Total	100.00

(1) Tsumeb mine, Tsumeb, Namibia; average of 14 electron microprobe analyses supplemented by Raman spectroscopy, H₂O by difference; corresponding to (Pb_{1.04}Ca_{0.05})_{Σ=1.09}(Ga_{1.41}Al_{1.35}Ge_{0.38}Fe_{0.02})_{Σ=3.16}(P_{1.91}S_{0.14})_{Σ=2.05}O_{8.44}(OH)_{5.56}.

Mineral Group: Alunite supergroup, plumbogummite subgroup.

Occurrence: A secondary mineral derived by alteration of Ge-Ga minerals in the oxidized zone of a dolostone-hosted, polymetallic, hydrothermal deposit.

Association: Germanite-renierite, chalcocite, Cd-rich sphalerite, galena, pyrite.

Distribution: From the Second oxidation zone, Tsumeb mine, Tsumeb, Otjikoto Region, Namibia.

Name: Reflects dominant essential gallium and the mineral's structural relation to *plumbogummite*.

Type Material: Mineralogical Museum, University of Hamburg, Germany (TS 531).

References: (1) Schlüter, J., T. Malcherek, and B. Mihailova (2014) Galloplumbogummite from Tsumeb, Namibia, a new member of the alunite group with tetravalent charge balance. N. Jb. Miner. Abh., 191(3), 301-309. (2) (2016) Amer. Mineral., 101, 1492-1493 (abs. ref. 1).