

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. As slender prismatic crystals, composed of {110}, {100}, and {111} and elongated along [001], to 5 mm; as divergent aggregates or “cave flowers”.

Physical Properties: Hardness = ~2 D(meas.) = 1.77 D(calc.) = 1.80 Soluble in H₂O, deliquescent.

Optical Properties: Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (-). *Orientation:* $X = b$; $Y = a$; $Z = c$. $\alpha = 1.458$ $\beta = 1.527$ $\gamma = 1.599$ $2V(\text{meas.}) = 90^\circ$ $2V(\text{calc.}) = 87^\circ$

Cell Data: *Space Group:* $Pbnm$. $a = 7.075$ $b = 7.647$ $c = 5.779$ $Z = 4$

X-ray Powder Pattern: Gwihaba Cave, Botswana.

3.194 (100), 3.212 (95), 2.595 (90), 3.364 (85), 3.863 (75), 2.400 (50), 3.805 (35)

Chemistry:

	(1)	(2)
N ₂ O ₅	61.41	67.47
K ₂ O	10.40	
(NH ₄) ₂ O	25.09	32.53
Total	96.90	100.00

(1) Gwihaba Cave, Botswana; K by XRF, N and H by gas chromatography, original total reported as 98.90%; corresponds to [(NH₄)_{0.81}K_{0.19}]_{Σ=1.00}(NO₃)_{1.00}. (2) (NH₄)NO₃.

Occurrence: As crusts and efflorescences formed by bacterial action on bat guano in caves.

Association: Gypsum, syngenite, boussingaultite, dittmarite, weddellite, glushinskite, struvite, biphosphammite (Gwihaba Cave, Botswana) struvite, biphosphammite (Wow Gdoo Pothole, Namibia); gypsum, weddellite, glushinskite, dittmarite (Temple of Doom Cave, South Africa).

Distribution: From Gwihaba [!wihaba] Cave, 280 km west of Maun, northwestern Botswana. In the Temple of Doom Cave and Wow Gdoo Pothole, Namibia. At Hall's, Torch, and Chaos Caves, Transvaal, South Africa.

Name: For Gwihaba Cave where the first specimens were collected, although the mineral name is spelled without the “c” (which stands for the “!” or “click” sound spoken by the San people who named the cave).

Type Material: Transvaal Museum, Pretoria, South Africa.

References: (1) Martini, J.E.J. (1996) Gwihabaite - (NH₄, K)NO₃, orthorhombic, a new mineral from Gwihaba Cave, Botswana. Bull. South African Speleological Assoc., 36, 19–21. (2) (1999) Amer. Mineral., 84, 194 (abs. ref. 1). (3) Hill, C. and P. Forti (1997) Cave minerals of the world (2nd edition), National Speleological Soc., Huntsville, Alabama, 159.