

Swaknoite

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Crystal Data: Orthorhombic. *Point Group:* n.d. Crystals are needlelike, elongate along [001], with {110}, {100}, {111}, {001}, to 1 mm, in rosettes; as coatings.

Physical Properties: *Tenacity:* Brittle. Hardness = Soft. D(meas.) = 1.91
D(calc.) = 1.89 Soluble on H₂O.

Optical Properties: Semitransparent. *Color:* White. *Luster:* Vitreous.
Optical Class: Biaxial (-). *Orientation:* X = b; Y = a; Z = c. $\alpha = 1.506$ $\beta = 1.510$
 $\gamma = 1.512$ 2V(meas.) = 65(10)° 2V(calc.) = 70°

Cell Data: *Space Group:* n.d. a = 20.959 b = 7.403 c = 6.478 Z = 4

X-ray Powder Pattern: Arnhem Cave, Namibia.

6.99 (100), 3.705 (89), 10.5 (57), 3.177 (55), 3.651 (39), 4.739 (36), 5.24 (21)

Chemistry:

	(1)	(2)
P ₂ O ₅	48.93	49.61
CaO	21.46	19.60
(NH ₄) ₂ O	16.06	18.20
H ₂ O	12.78	12.59
Total	99.23	100.00

(1) Arnhem Cave, Namibia; by electron microprobe, NH₄ and H₂O by CHN analyzer; corresponds to (NH₄)_{1.78}Ca_{1.10}(PO₃OH)_{1.99}•1.05H₂O. (2) (NH₄)₂Ca(PO₃OH)₂•H₂O.

Polymorphism & Series: Dimorphous with mundrabillaite.

Occurrence: Formed from bat guano and urine by reaction with cave walls.

Association: Mundrabillaite, dittmarite, arcanite, dolomite.

Distribution: Found in Arnhem Cave, 150 km east of Windhoek, Namibia.

Name: From Suid Wes Africa Karst Navorsing Organisasie (SWAKNO), a speleological exploration organization, the members of which noted the species.

Type Material: State Museum, Windhoek, Namibia; Transvaal Museum, Pretoria, South Africa.

References: (1) Martini, J.E.J. (1991) Swaknoite [Ca(NH₄)₂•(HPO₄)₂•H₂O, orthorhombic]: a new mineral from Arnhem cave, Namibia. Bull. South African Speleological Assoc., 32, 72–74. (2) (1993) Amer. Mineral., 78, 1110 (abs. ref. 1).