

Namibite

$\text{Cu}(\text{BiO})_2(\text{VO}_4)(\text{OH})$

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Crystal Data: Monoclinic. *Point Group:* $2/m$, m , or 2 . Rarely as platy crystals, flattened on $\{100\}$, with $\{101\}$ and $\{111\}$, to 2 mm, in “bowtie” or parallel aggregates; as radiating dendritic veinlets, spheres, and as rounded masses. *Twinning:* Common on $\{011\}$, interpenetrating and polysynthetic.

Physical Properties: *Cleavage:* On $\{001\}$, good. Hardness = 4.5–5 VHN = 473 (100 and 200 g loads). $D(\text{meas.}) = 6.86(3)$ $D(\text{calc.}) = 6.91$

Optical Properties: Semitransparent. *Color:* Dark olive-green to greenish black.

Streak: Pistachio-green.

Optical Class: Biaxial (–). *Pleochroism:* Slight; X = pale yellowish green; Y = pistachio-green; Z = dark green. *Orientation:* $Z = b$; $X \wedge a \simeq 12^\circ$. *Absorption:* $Z > Y > X$. $\alpha = > 2.10$ $\beta = > 2.10$ $\gamma = > 2.10$ $2V(\text{meas.}) = \text{Moderate for red, very small for blue.}$

Cell Data: *Space Group:* $C2/m$, Cm , or $C2$. $a = 11.864(8)$ $b = 3.696(4)$ $c = 7.491(5)$ $\beta = 109^\circ 42(6)'$ $Z = 2$

X-ray Powder Pattern: Khorixas, Namibia.

3.018 (100), 3.574 (75), 5.58 (70), 2.672 (60), 3.284 (50), 3.525 (40), 2.611 (35)

Chemistry:

	(1)	(2)	(3)
V_2O_5	14.5	13.77	14.09
Bi_2O_3	74.1	72.24	72.19
CuO		12.03	12.32
Cu_2O	11.5		
H_2O		1.51	1.40
Total	100.1	99.55	100.00

(1) Khorixas, Namibia; by electron microprobe, average of three analyses. (2) Jáchymov, Czech Republic; $(\text{OH})^{1-}$ and $(\text{VO}_4)^{3-}$ demonstrated present by IR; corresponds to $\text{Cu}_{0.98}(\text{BiO})_{2.01}(\text{VO}_4)_{0.98}(\text{OH})_{1.03} \cdot 0.03\text{H}_2\text{O}$. (3) $\text{Cu}(\text{BiO})_2(\text{VO}_4)(\text{OH})$.

Occurrence: A secondary mineral in bismuth-bearing hydrothermal polymetallic mineral deposits and granite pegmatites.

Association: Bismuth, bismutite, wittichenite, bismite, bismutostibiconite, bismutoferrite, clinobisvanite, pucherite, beyerite, schumacherite, mixite, eulytite, chrysocolla.

Distribution: From an undefined locality [Copper Valley,] near Khorixas, Namibia. In the USA, at the Stewart and White Queen mines, Pala district, San Diego Co., in the Lodi #4 mine, Spring Creek district, Plumas Co., and at Amboy, San Bernardino Co., California; from the Mica Lode mine, Eight Mile Park, Fremont Co., Colorado. In the Evans Lou quarry, near Wakefield Lake Quebec, Canada. From Morass Creek, north of Benambra, Victoria, and at the Iron Monarch quarry, Iron Knob, South Australia. At the Eliáš mine, Jáchymov (Joachimsthal), Czech Republic. From the Hechtsberg quarry, near Hausach, Black Forest, and in the Wolfgang Maassen mine, Schneeberg, Saxony, Germany. At Buckbarrow Beck, Cumbria, England.

Name: For the Namib Desert, along the coast of Namibia.

Type Material: The University, Leeds, England; University of Helsinki, Helsinki, Finland.

References: (1) von Knorring, O. and T.G. Sahama (1981) Namibite, a new copper-bismuth-vanadium mineral from Namibia. *Schweiz. Mineral. Petrog. Mitt.*, 61, 7–12. (2) (1982) *Amer. Mineral.*, 67, 857 (abs. ref. 1). (3) Mrázek, Z., F. Veselovský, J. Hloušek, H. Moravcová, and P. Ondruš (1994) Redefinition of namibite, $\text{Cu}(\text{BiO})_2\text{VO}_4\text{OH}$. *Neues Jahrb. Mineral., Monatsh.*, 481–488. (4) Dunning, G.E. and J.F. Cooper, Jr. (1998) Namibite: a summary of world occurrences. *Mineral. Record*, 29, 163–166.

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