

Ekatite

Crystal Data: Hexagonal. *Point Group:* 6mm. As sprays of acicular crystals to 2 mm, elongated along [001] and striated.

Physical Properties: *Cleavage:* None. *Fracture:* n.d. *Tenacity:* Brittle.
Hardness = ~ 3 D(meas.) = n.d. D(calc.) = 4.061

Optical Properties: Translucent. *Color:* Brownish black. *Streak:* Brown. *Luster:* Vitreous.
Optical Class: Uniaxial (+). $\omega = \sim 1.99$ $\epsilon = \sim 2.08$ $n(\text{calc.}) = 2.013$
Pleochroism: Strong, *O* = dark brownish black, *E* = medium brown, both with a greenish tint.

Cell Data: *Space Group:* $P6_3mc$. $a = 12.773(2)$ $c = 5.051(1)$ $Z = 1$

X-ray Powder Pattern: Tsumeb, Namibia.

3.220 (10), 2.420 (7), 6.37(5), 11.11 (3), 2.766 (3), 1.867 (3), 1.672 (3)

Chemistry:	(1)	(2)
FeO	[21.19]	21.41
Fe ₂ O ₃	[27.26]	27.45
ZnO	3.80	3.73
As ₂ O ₃	42.56	41.94
SiO ₂	2.12	2.07
H ₂ O	[3.42]	3.40
Total	100.35	100.00

(1) Tsumeb, Namibia; average electron microprobe analysis, supplemented by IR spectroscopy, FeO:Fe₂O₃ and H₂O calculated from structure; corresponding to $(\text{Fe}^{3+}_{5.95}\text{Fe}^{2+}_{5.14}\text{Zn}_{0.81})_{\Sigma=11.90}(\text{OH})_{6.00}(\text{As}_{1.01}\text{O}_3)_{6.00}[(\text{AsO}_3)_{1.43}(\text{HOSiO}_3)_{0.61}]_{\Sigma=2.04}$. (2) "Ideal composition" indicated by author.

Occurrence: In the oxidized portion of a polymetallic sulfide mineral deposit.

Association: Chalcocite, quartz.

Distribution: From Tsumeb, Otjikoto region, Namibia (probably from the second oxidation zone).

Name: Honors Namibian mining engineer Dieter Ekat (1935-1996).

Type Material: Institute for Mineralogy and Crystal Chemistry, University of Stuttgart, Germany (NM20).

References: (1) Keller, P. (2001) Ekatite, $(\text{Fe}^{3+}, \text{Fe}^{2+}, \text{Zn})_{12}(\text{OH})_6[\text{AsO}_3]_6[\text{AsO}_3, \text{HOSiO}_3]_2$, a new mineral from Tsumeb, Namibia, and its crystal structure. *Eur. J. Mineral.*, 13, 769-777. (2) (2002) *Amer. Mineral.*, 87, 355-356 (abs. ref. 1).