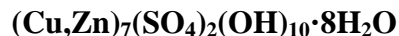


Minohlite

Crystal Data: Hexagonal. *Point Group:* n.d. Hexagonal platy crystals, to 50 μm , form rosettes to 100 μm .

Physical Properties: *Cleavage:* Perfect on {0001}. *Fracture:* n.d. *Tenacity:* Brittle. Hardness = < 2 D(meas.) = 3.39 [Impure material.] D(calc.) = 3.28 Soluble in dilute HCl.

Optical Properties: Transparent. *Color:* Bluish green. *Streak:* Pale green. *Luster:* Pearly to vitreous.

Optical Class: n.d. *Anisotropic.* *Birefringence:* Moderate. *Pleochroism:* None.

Cell Data: *Space Group:* n.d. $a = 8.2535(11)$ $c = 8.1352(17)$ $Z = 1$

X-ray Powder Pattern: Hirao mine, Minoh (Minoo) City, Osaka Prefecture, Japan. 2.702 (100), 2.564 (76), 1.560 (43), 4.128 (24), 1.532 (24), 8.138 (20), 1.351 (12)

Chemistry:	(1)
CuO	37.18
ZnO	21.08
FeO	0.49
SO ₃	16.78
SiO ₂	0.44
<u>H₂O</u>	<u>[24.03]</u>
Total	100.00

(1) Hirao mine, Minoh City, Osaka Prefecture, Japan; average of 5 electron microprobe analyses, H₂O by difference, OH, H₂O, SO₄ confirmed by IR spectroscopy; corresponds to (Cu_{4.43}Zn_{2.45}Fe_{0.06}) $\Sigma=6.94$ [(SO₄)_{1.99}(SiO₄)_{0.07}] $\Sigma=2.06$ (OH)_{9.64}·7.81H₂O.

Occurrence: A secondary mineral in the oxidized zone of a Cu Zn sulfide deposit.

Association: Chamosite, muscovite, smithsonite, serpierite, ramsbeckite, limonite, chalcopyrite.

Distribution: From the Hirao mine, Minoh (Minoo) City, Osaka Prefecture, Japan.

Name: For Minoh City, from where the first specimens were collected.

Type Material: National Museum of Nature and Science, Tsukuba (NSM-M43670 & M43671), and the Kyoto University Museum, Kyoto (KUM-M00001), Japan.

References: (1) Ohnishi, M., N. Shimobayashi, D. Nishio-Hamane, K. Shinoda, K. Momma, and T. Ikeda (2013) Minohlite, a new copper-zinc sulfate mineral from Minoh, Osaka, Japan. *Mineral. Mag.*, 77(3), 335-342. (2) (2015) *Amer. Mineral.*, 100, 2011-2012 (abs. ref. 1).