

Khinite**PbCu₃Te⁶⁺O₆(OH)₂**

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. Crystals are dipyramidal, curved and corroded, to 0.15 mm.

Physical Properties: *Cleavage:* On {001}, fair. *Tenacity:* Brittle. *Hardness* = 3.5
D(meas.) = 6.5–7.0 D(calc.) = 6.69

Optical Properties: Semitransparent. *Color:* Dark green, bottle-green. *Streak:* Green.
Luster: Vitreous.

Optical Class: Biaxial (+). *Pleochroism:* X = emerald-green; Y = Z = yellowish green.

Absorption: Z = Y > X. $\alpha = 2.110(4)$ $\beta = 2.112(4)$ $\gamma = 2.165(4)$ 2V(meas.) = 20°

Cell Data: *Space Group:* Fddd. $a = 5.740(5)$ $b = 9.983(9)$ $c = 23.96(9)$ Z = 8

X-ray Powder Pattern: Tombstone, Arizona, USA.

2.491 (10), 3.451 (9), 4.866 (8), 2.996 (7), 2.204 (7), 2.818 (6), 1.916 (6)

Chemistry:

	(1)	(2)	(3)
TeO ₃	24.5	26.4	26.79
CuO	33.2	35.8	36.41
PbO	32.4	35.0	34.05
H ₂ O		[2.75]	2.75
Total		[100.0]	100.00

(1) Tombstone, Arizona, USA; insoluble quartz and chlorargyrite present but in an amount too small to be weighed. (2) Analysis (1) recalculated to 100.0% with theoretical H₂O as determined by crystal-structure analysis; corresponding to Pb_{1.04}Cu_{3.00}Te_{1.00}O₆(OH)₂. (3) PbCu₃TeO₆(OH)₂.

Polymorphism & Series: Dimorphous with parakhinite.

Occurrence: A very rare secondary mineral formed under acid oxidizing conditions from gold–telluride ores in massive vein quartz.

Association: Chlorargyrite, dugganite, quetzalcoatlite, tlapallite, gold, chrysocolla, tenorite, quartz.

Distribution: From the dump of the Old Guard mine, and at the Lucky Cuss, Emerald, and Empire mines, Tombstone, Cochise Co., Arizona, USA.

Name: To honor BaSaw Khin (1931–), Burmese–American mineralogist, Phelps Dodge Corporation.

Type Material: The Natural History Museum, London, England, 1980,541.

References: (1) Williams, S.A. (1978) Khinite, parakhinite, and dugganite, three new tellurates from Tombstone, Arizona. *Amer. Mineral.*, 63, 1016–1019. (2) Burns, P.C., M.A. Cooper, and F.C. Hawthorne (1995) Parakhinite, Cu₃²⁺PbTe⁶⁺O₆(OH)₂: crystal structure and revision of chemical formula. *Can. Mineral.*, 33, 33–40.