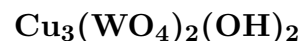


Cuprotungstite



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Crystal Data: Tetragonal. *Point Group:* 422. As dipyramidal crystals, to 30 μm ; aggregated into botryoidal globules, incrustations, and veinlets, also compact to friable massive.

Physical Properties: Hardness = n.d. $D(\text{meas.}) = 5.40\text{--}6.98$ $D(\text{calc.}) = 7.06$

Optical Properties: Semitransparent. *Color:* Pistachio-green, olive-green, leek-green, emerald-green. *Streak:* Greenish gray to greenish yellow. *Luster:* Vitreous, waxy, earthy. *Optical Class:* Uniaxial (-). $\omega = 2.18(1)$ $\epsilon = 2.10(1)$

Cell Data: *Space Group:* $P4_12_12$. $a = 8.93$ $c = 14.48$ $Z = 12$

X-ray Powder Pattern: Cave Creek, Arizona, USA.
2.53 (10), 4.03 (8), 3.80 (8), 1.462 (7), 7.76 (5b), 1.729 (5b), 2.45 (4)

Chemistry:	(1)	(2)	(3)
WO_3	57.80	64.12	64.37
Fe_2O_3	0.80		
CuO	36.0	32.83	33.13
PbO		0.61	
CaO	0.25		
H_2O	4.75	[2.44]	2.50
Total	99.60	[100.00]	100.00

(1) Peralillo, Chile. (2) Cordillera mine, Australia; partial analysis by electron microprobe, H_2O by difference; then corresponds to $(\text{Cu}_{2.98}\text{Pb}_{0.02})_{\Sigma=2.00}(\text{WO}_4)_{2.00}(\text{OH})_{1.96}$. (3) $\text{Cu}_3(\text{WO}_4)_2(\text{OH})_2$.

Occurrence: A rare secondary mineral typically replacing scheelite.

Association: Scheelite, stolzite, raspite.

Distribution: From La Paz, Baja California, Mexico. In the USA, on the Gold Cliff claims, Cave Creek, Maricopa Co., Arizona; in the Green Monster mine, near White River, Kern Co., California; from the South Peacock mine, Seven Devils district, Adams Co., Idaho. At the Llamuco copper mine, east of Salamanca, Coquimbo, Chile. In England, at Buckbarrow Beck, Corney Fell, Cumbria; in Cornwall, from Wheal Gorland, Gwennap; at the Gunnislake mine, Calstock; in the Gunheath china clay pit, St. Austell. From the Clara mine, near Oberwolfach, Black Forest, Germany. At Natas, Namibia. In the Cordillera mine, near Tuena, New South Wales, Australia. Numerous other localities have been reported but require modern confirmation.

Name: For copper, *cuprum* and *tungsten* in the composition.

Type Material: Natural History Museum, Paris, France, 69.47.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 1091–1092. (2) Walenta, K. (1979) New data for cuprotungstite, *Mineral. Mag.*, 43, 448–450. (3) Duggan, M.B. (1988) Cuprotungstite from the Cordillera mine, Crookwell, New South Wales. *Australian Mineral.*, 3, 61–64.