

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. Crystals, to 0.4 mm, are tabular on {100} and elongated along [010], with well-developed {100}, {110}, and {101}.

Physical Properties: *Cleavage:* Perfect on {100}. *Fracture:* n.d. *Tenacity:* Very brittle. Hardness = n.d. D(meas.) = n.d. D(calc.) = 4.76(1)

Optical Properties: Opaque. *Color:* Black or dark gray. *Streak:* Brown. *Luster:* Metallic. *Optical Class:* n.d.

Cell Data: Space Group: *Pbcm*. $a = 5.440(1)$ $b = 11.154(2)$ $c = 10.333(2)$ $Z = 4$

X-ray Powder Pattern: Second cinder cone, Tolbachik volcano, Kamchatka Peninsula, Russia. 2.62 (100), 3.03 (60), 4.69 (40), 2.39 (40), 5.31 (30), 3.70 (30), 1.67 (20)

Chemistry:	(1)
CuO	69.03
Fe ₂ O ₃	0.17
As ₂ O ₅	15.50
V ₂ O ₃	7.72
SO ₃	0.57
Cl	8.47
-O = Cl	1.91
Total	99.55

(1) Second cinder cone, Tolbachik volcano, Kamchatka Peninsula, Russia; average of 21 electron microprobe analyses; corresponds to $\text{Cu}_{3.89}\text{Fe}_{0.01}\text{O}_{1.93}[(\text{As}_{0.60}\text{V}_{0.38}\text{S}_{0.03})\text{O}_4]\text{Cl}_{1.07}$.

Occurrence: As sublimates near a volcanic fumarole vent and included within euchlorine.

Association: Euchlorine, tolbachite, kamchatkite, klyuchevskite-alumoklyuchevskite, ponomarevite, hematite, tenorite, V-rich lammerite.

Distribution: From the "Yadovitaya" ("Poisonous") fumarole, Second cinder cone, Tolbachik volcano, Kamchatka Peninsula, Russia.

Name: Alludes to the *copper* and *arsenic* in the essential composition.

Type Material: Mining Museum, Mining Institute, St. Petersburg, Russia (3107/2).

References: (1) Vergasova, L.P., G.L. Starova, S.V. Krivovichev, S.K. Filatov, and V.E. Ananiev (1999) Coparsite, $\text{Cu}_4\text{O}_2[(\text{As}, \text{V})\text{O}_4]\text{Cl}$, a new mineral species from the Tolbachik volcano, Kamchatka Peninsula, Russia. *Can. Mineral.*, 37, 911-914. (2) (2000) *Amer. Mineral.*, 85(5-6), 874 (abs. ref. 1).