

Cloncurryite**Cu_{0.5}(VO)_{0.5}Al₂(PO₄)₂F₂·5H₂O**

Crystal Data: Monoclinic. *Point Group:* 2/m. As aggregates of acicular crystals to 1 mm, elongated along [100]. *Twinning:* On {100}.

Physical Properties: *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Uneven. Hardness = 2 D(meas.) = n.d. D(calc.) = 2.525 Non-fluorescent.

Optical Properties: Transparent. *Color:* Sky-blue. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (-) $\alpha = 1.541(2)$ $\beta = 1.548(2)$ $\gamma = 1.550(2)$ $2V(\text{calc.}) = 56^\circ$ *Orientation:* $X = a$, $Y = b$, $Z = c$. *Pleochroism:* Faint, but distinct; $Y = Z =$ pale blue, $X =$ very pale greenish blue. *Dispersion:* $r < v$, very weak.

Cell Data: *Space Group:* P2/c. $a = 4.9573(2)$ $b = 12.1824(4)$ $c = 18.9749(8)$ $\beta = 90.933(6)^\circ$ $Z = 4$

X-Ray Diffraction Pattern: Great Australia mine, Cloncurry, Queensland, Australia. 6.101 (100), 5.621 (91), 9.515 (67), 3.976 (21), 3.338 (21), 4.753 (17), 3.163 (17) [Distinguished from nevadaite by analytical confirmation of the presence of VO²⁺ and the presence of the 5.832 (6) reflection in X-ray powder diffraction data.]

Chemistry:	(1)
CuO	10.29
VO ₂	8.32
Al ₂ O ₃	23.63
Fe ₂ O ₃	0.32
P ₂ O ₅	32.54
F	4.34
H ₂ O	[22.4]
<u>-O = F</u>	<u>1.83</u>
Total	100.00

(1) Great Australia mine, Cloncurry, Queensland, Australia; average electron microprobe analysis supplemented by Raman spectroscopy, H₂O by difference; corresponds to [Cu_{0.56}(VO)_{0.44}]_{Σ=1.00}(Al_{2.02}Fe_{0.02})_{Σ=2.04}(PO₄)₂F_{1.00}(OH)_{1.00}·4.92H₂O.

Occurrence: A product of the weathering in silicified goethite-hematite gossan.

Association: Malachite, pseudomalachite, cuprite, native copper.

Distribution: From the B Tangye lode, Great Australia mine, Cloncurry, Queensland, Australia.

Name: For the town of *Cloncurry*, near where specimens were first collected.

Type Material: Geosciences Department, Museum Victoria, Australia (M49502).

References: (1) Colchester, D.M., P. Leverett, A.R. McKinnon, J.L. Sharpe, P.A. Williams, D.E. Hibbs, P. Turner, and V.H. Hoppe (2007) Cloncurryite, Cu_{0.56}(VO)_{0.44}Al₂(PO₄)₂(F,OH)₂·5H₂O, a new mineral from the Great Australia mine, Cloncurry, Queensland, Australia, and its relationship to nevadaite, Australian J. Mineral., 13(1), 5-13.