

Paratacamite-(Ni) **$\text{Cu}_3(\text{Ni,Cu})\text{Cl}_2(\text{OH})_6$**

Crystal Data: Hexagonal. *Point Group:* $\bar{3}$. Crystals exhibit $\{10\bar{1}1\}$, $\{02\bar{2}1\}$, and $\{0001\}$ as equant rhombohedra, to 0.25 mm; also in aggregates to ~2 mm.

Physical Properties: *Cleavage:* Good on $\{10\bar{1}1\}$. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 3 D(meas.) = 3.70 D(calc.) = 3.735

Optical Properties: Transparent. *Color:* Dark green. *Streak:* Light green. *Luster:* Vitreous. *Optical Class:* Uniaxial (-). ω and $\varepsilon > 1.8$

Cell Data: *Space Group:* $R\bar{3}$. $a = 13.682(2)$ $c = 13.916(2)$ $Z = 12$

X-ray Powder Pattern: Carr Boyd Rocks Ni mine, Western Australia. 2.751 (100), 5.445 (81), 2.254 (65), 2.894 (21), 1.815 (14), 4.637 (13), 4.505 (8)

Chemistry:	(1)
CuO	62.43
NiO	12.61
MgO	0.03
CoO	0.31
Cl	17.60
H ₂ O	[13.04]
$\frac{-\text{O} = \text{Cl}_2}{\text{Total}}$	$\frac{3.98}{102.04}$

(1) Carr Boyd Rocks Ni mine, Western Australia; average of 5 electron microprobe analyses, H₂O from stoichiometry; corresponding to $\text{Cu}_3(\text{Ni}_{0.71}\text{Cu}_{0.25}\text{Co}_{0.02})_{\Sigma=0.98}\text{Cl}_{2.06}(\text{OH})_6$.

Occurrence: A secondary mineral formed by the oxidation of pentlandite in a saline environment.

Association: Gillardite, spangolite, gypsum.

Distribution: From the Carr Boyd Rocks Ni mine, Western Australia.

Name: As the nickel analogue of *paratacamite*.

Type Material: Western Australian Museum, Perth, Australia (WAM M365.2003).

References: (1) Sciberras, M.J., P. Leverett, P.A. Williams, D.E. Hibbs, P.J. Downes, M.D. Welch, and A.R. Kampf (2013) Paratacamite-(Ni), $\text{Cu}_3(\text{Ni,Cu})\text{Cl}_2(\text{OH})_6$, a new mineral from the Carr Boyd Rocks mine, Western Australia. *Australian J. Mineral.*, 17(1), 39-44. (2) (2015) *Amer. Mineral.*, 100, 2357 (abs. ref. 1).