Gillardite

Crystal Data: Hexagonal.  \textit{Point Group}: \( \bar{3} \ 2/m \). As aggregates of equant rhombohedral crystals to 0.5 mm.


Cell Data: \textit{Space Group}: \( R\bar{3} \ m \).  \( a = 6.8364(1) \)  \( c = 13.8459(4) \)  \( Z = 3 \)

X-Ray Diffraction Pattern: 123 North deposit, Widgiemooltha, Western Australia, Australia. 5.459 (100), 2.753 (69), 2.256 (39), 2.901 (19), 4.648 (16), 2.725 (14), 1.818 (13)

Chemistry:

\begin{tabular}{|l|c|}
\hline
  & \( \text{CuO} \) \( \text{NiO} \) \( \text{CoO} \) \( \text{FeO} \) \( \text{Cl} \) \( \text{H}_{2}\text{O} \) \( -\text{O} = \text{Cl} \) Total \\
\hline
(1) & 55.6 \ 15.3 \ 0.2 \ 0.1 \ 17.3 \ 13.1 \ 3.9 \ 97.7 \\
\hline
\end{tabular}

(1) 123 North deposit, Widgiemooltha, Western Australia, Australia; average electron microprobe analysis, \( \text{H}_{2}\text{O} \) by TGA; normalized corresponds to \( (\text{Cu}_{3.08}\text{Ni}_{0.90}\text{Co}_{0.01}\text{Fe}_{0.01})\text{Cl}_{3.04}\text{O}_{0.96} \).

Polymorphism & Series: Solid-solution series with Ni-rich paratacamite.

Occurrence: In silicified ferruginous gossan developed on a komatiite-hosted sulfide deposit.

Association: Ni-bearing clinoatacamite.

Distribution: 123 North deposit, 5 km north-northwest of Widgiemooltha, Western Australia, Australia.

Name: Honors Professor Robert David Gillard (b. 1936), formerly of the Department of Chemistry, Cardiff University, Wales, UK, for his contributions to inorganic coordination chemistry.

Type Material: Gartrell Collection, Department of Earth and Planetary Sciences, Western Australian Museum, Perth Cultural Centre, Perth, Australia (8774).