Chlorophoenicite \( (\text{Mn,Mg})_3\text{Zn}_2(\text{AsO}_4)(\text{OH,O})_6 \)

Crystal Data: Monoclinic. Point Group: 2/m. As stout to acicular prismatic crystals, elongated and striated parallel [010], to 1 cm, generally with etched and dull terminations, and prism faces uneven or warped; in divergent sprays, dense masses of acicular crystals, microcristalline, chalky pulverulent coatings.

Physical Properties: Cleavage: Good on \{100\}. Tenacity: Brittle. Hardness = 3.5 D(meas.) = 3.46–3.53 D(calc.) = 3.47

Optical Properties: Translucent. Color: Light grayish green in natural light, pink to light purplish red in artificial light, typically white in aggregates; nearly colorless in transmitted light. Luster: Vitreous, silky, pearly on cleavages. Optical Class: Biaxial (-). Orientation: \( Y = b \). Dispersion: \( r > v \), strong. \( \alpha = 1.682 \) \( \beta = 1.690 \) \( \gamma = 1.697 \) \( 2V(\text{meas.}) = 83(2)^\circ \)

Cell Data: Space Group: \( C2/m \). \( a = 22.98(4) \) \( b = 3.32(1) \) \( c = 7.32(1) \) \( \beta = 106^\circ 00(10)^\circ \)

Z = 2

X-ray Powder Pattern: Franklin, New Jersey, USA; nearly identical to magnesium-chlorophoenicite. (ICDD 25-1159).

2.642 (100), 3.71 (70), 6.87 (50), 3.11 (50), 2.990 (40), 1.758 (30), 1.822 (20)

Chemistry:

\[
\begin{array}{lcccc}
 & P_2O_5 & As_2O_5 & FeO & MnO & ZnO \\
\text{Chemistry:} & 0.1 & 20.3 & 0.0 & 33.0 & 30.3 \\
 & MgO & CaO & H_2O & \text{Total} \\
 & 1.6 & 0.1 & 14.9 & 100.3 \\
\end{array}
\]

(1) Franklin, New Jersey, USA; by electron microprobe, \( H_2O \) by DTA–TGA, corresponding to \( (\text{Mn}_{2.65}\text{Mg}_{0.23}\text{Zn}_{0.12})\Sigma=3.00\text{Zn}_{2.00}(\text{AsO}_4)(\text{OH,O})_6 \).

Occurrence: Along secondary cracks through franklinite ores in a metamorphosed stratiform zinc orebody.

Association: Leucophoenicite, hodgkinsonite, hetaerolite, tephroite, gageite, chlorophoenicite, sclarite, pyrochroite, willemite, zincite, calcite, barite, franklinite.

Distribution: From Franklin and Sterling Hill, Ogdensburg, Sussex Co., New Jersey, USA.

Name: From the Greek for green and purple-red, alluding to the mineral’s colors in natural and artificial light.


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