Molybdoformacite \( \text{Pb}_2\text{Cu(AsO}_4\text{, PO}_4)(\text{MoO}_4\text{, CrO}_4)(\text{OH})} \)

\( \text{Crystal Data:} \) Monoclinic. \( \text{Point Group:} \) \( 2/m \). Prismatic to lathlike crystals, elongated along \([010]\), to 1 mm. Twinning: Rare “butterfly” contact twins, at 120°.


\( \text{Optical Class:} \) Biaxial. Pleochroism: Distinct; \( X = Y \) = pale yellow; \( Z \) = yellow-green. Orientation: \( Z = b \). \( \alpha = 2.05(2) \) \( \beta = \text{n.d.} \) \( \gamma = 2.15(2) \) \( 2V(\text{meas.}) = \text{n.d.} \)

\( \text{Cell Data:} \) Space Group: \( \text{P}_2_1/c \). \( a = 8.100(5) \) \( b = 5.946(3) \) \( c = 17.65(1) \) \( \beta = 109.17(5)^\circ \) \( Z = 4 \)

\( \text{X-ray Powder Pattern:} \) Tsumeb, Namibia. 3.32 (100), 2.979 (60), 2.845 (60), 2.753 (60), 4.84 (50), 2.353 (50), 3.41 (40)

\( \text{Chemistry:} \)

\[
\begin{align*}
\text{MoO}_3 & \quad 14.29 \\
\text{CrO}_3 & \quad 2.15 \\
\text{P}_2\text{O}_5 & \quad 2.13 \\
\text{As}_2\text{O}_5 & \quad 12.68 \\
\text{CuO} & \quad 9.97 \\
\text{PbO} & \quad 56.45 \\
\text{H}_2\text{O} & \quad [1.16] \\
\text{Total} & \quad [98.83]
\end{align*}
\]

(1) Tsumeb, Namibia; by electron microprobe, original total given as 98.84%, \( \text{H}_2\text{O} \) calculated from stoichiometry; corresponds to \( \text{Pb}_{1.97}\text{Cu}_{0.98}(\text{As}_{0.86}\text{P}_{0.23})_{\Sigma=1.09}\text{O}_4(\text{Mo}_{0.77}\text{Cr}_{0.17})_{\Sigma=0.94}\text{O}_4(\text{OH}) \).

\( \text{Occurrence:} \) In the deep oxidation zone of a dolostone-hosted hydrothermal polymetallic ore deposit (Tsumeb, Namibia).

\( \text{Association:} \) Dioptase, duftite, wulfenite, quartz, calcite, hematite (Tsumeb, Namibia); wulfenite, pyromorphite (Tonopah-Belmont mine, Arizona, USA); mimetite, descloizite, willemite, chrysocolla, hematite (Bullfrog #2 claim, New Mexico, USA).

\( \text{Distribution:} \) From Tsumeb, Namibia. In the USA, in Arizona, in the Tonopah-Belmont mine, Big Horn Mountains, Osborne district, Maricopa Co., and the Rawhide mine, Buckskin Mountains, Mohave Co.; at the Bullfrog #2 claim, near Silver Hill, three km northwest of Magdalena, Socorro Co., and in the Tres Hermanas Mountains, Mahoney district, Luna Co., New Mexico; at the Silver Coin mine, near Valmy, Iron Point district, Humboldt Co., Nevada. From La Cobradita, Sonora, Mexico.

\( \text{Name:} \) For its predominance of \textit{molybdenum} and relation to \textit{fornacite}.

\( \text{Type Material:} \) Mineralogical Institute, Ruhr-University, Bochum, Germany.

\( \text{References:} \)