Rappoldite

\[
PbCo_2(AsO_4)_2 \cdot 2H_2O
\]

Crystal Data: Triclinic. \textit{Point Group:} \textit{T}. Prismatic to tabular crystals, elongated along [1 2 0] to 1 mm, show \{210\} and \{001\}; as rosette-like aggregates. \textit{Twinning:} By reflection on \{2 3 0\}.


Optical Properties: Transparent. \textit{Color:} Red to red-brown. \textit{Streak:} Light yellow-brown. \textit{Luster:} Vitreous. \textit{Optical Class:} Biaxial (+). \(\alpha\) (calc.) = 1.85 \(\beta\) = 1.87(2) \(\gamma\) = 1.90(2) 2V(meas.) = 85(5)°

Dispersion: Distinct, \(r > v\). \textit{Orientation:} \(X \approx || c\), \(Y \approx || [1 2 0]\). Nonpleochroic.

Cell Data: \textit{Space Group:} \textit{P1}. \(a = 11.190(2)\) \(b = 10.548(2)\) \(c = 7.593(1)\) \(\alpha = 100.38(1)\)° \(\beta = 109.59(2)\)° \(\gamma = 98.96(1)\)° \(Z = 4\)

X-ray Powder Pattern: Rappold mine, near Schneeberg, Saxony, Germany. 3.256 (100), 4.670 (97), 3.072 (56), 2.568 (46), 2.890 (40), 1.731(38), 2.760 (37)

Chemistry:

\[
\begin{array}{lc}
\text{PbO} & 35.27 \\
\text{CaO} & 0.12 \\
\text{Bi}_2\text{O}_3 & 0.11 \\
\text{Fe}_2\text{O}_3 & 0.28 \\
\text{ZnO} & 4.52 \\
\text{CoO} & 11.60 \\
\text{NiO} & 7.31 \\
\text{As}_2\text{O}_3 & 35.82 \\
\text{SO}_3 & 0.11 \\
\text{H}_2\text{O} & 5.62 \\
\text{Total} & 100.76 \\
\end{array}
\]

(1) Rappold mine, near Schneeberg, Saxony, Germany; average electron microprobe analysis supplemented by IR spectroscopy, H$_2$O calculated; corresponding to \(\text{(Pb}_{1.01}\text{Ca}_{0.01})\text{Zn}_{0.35}\text{Fe}_{0.02})\text{As}_{1.99}\text{SO}_4\text{OH}_{0.02}\text{H}_2\text{O}\).

Mineral Group: Tsumcorite group.

Occurrence: A secondary mineral.

Association: Cobaltlotharmeyerite.

Distribution: From the Rappold mine, near Schneeberg, Saxony, Germany.

Name: For the Rappold mine, near Schneeberg, Saxony, Germany.

Type Material: Bergakademie, Freiberg, Germany.