Potosiite  

\( \text{Pb}_6\text{Sn}_2^{4+}\text{Fe}^{2+}\text{Sb}_2^{5+}\text{S}_{16} \)

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**Crystal Data:** Triclinic, pseudotetragonal or pseudohexagonal. \textit{Point Group:} 1 or \( \overline{1} \). As tabular crystals to 3 cm; may be in felted masses. \textit{Cleavage:} Perfect \( \parallel (001) \); less perfect \( \parallel (010) \).

**Physical Properties:** Hardness = n.d. \( VHN = 71.7 \) (50 g load); 94–115 (100 g load). 
\( D(\text{meas.}) = \text{n.d.} \) \( D(\text{calc.}) = 6.20 \)


**Cell Data:** \textit{Space Group:} \( \text{P}_{\text{1}} \) or \( \text{P}_{\text{T}} \), with two incommensurate cells, one pseudotetragonal with:

\[ \begin{align*}
\alpha &= 5.915(10) \\
\beta &= 5.938(13) \\
\gamma &= 17.239(17) \\
\alpha &= 91.63(28)^\circ \\
\beta &= 91.02(25)^\circ \\
\gamma &= 90.84(21)^\circ 
\end{align*} \]

and the other pseudohexagonal with:

\[ \begin{align*}
\alpha &= 6.253(7) \\
\beta &= 3.734(5) \\
\gamma &= 17.229(19) \\
\alpha &= 90.80(19)^\circ \\
\beta &= 91.71(16)^\circ \\
\gamma &= 90.18(14)^\circ 
\end{align*} \]

\( Z = \text{n.d.} \)

**X-ray Powder Pattern:** Andacaba deposit, Bolivia. 
2.876 (100), 3.45 (90), 4.32 (30), 2.936 (10), 2.067 (10), 2.159 (9), 1.920 (8)

**Chemistry:**

\[ \begin{array}{ccc}
\text{Pb} & 55.23 & 55.3 \\
\text{Ag} & 0.21 & 0.3 \\
\text{Sn} & 11.57 & 10.7 \\
\text{In} & 0.5 & 0.5 \\
\text{Fe} & 2.32 & 2.4 \\
\text{Sb} & 10.58 & 10.6 \\
\text{S} & 19.80 & 20.4 \\
\end{array} \]

Total 99.71 100.2 100.00

(1) Andacaba deposit, Bolivia; by electron microprobe, average of seven analyses; corresponding to \( (\text{Pb}_{6.00}\text{Ag}_{0.04}\Sigma=6.04}\text{Sn}_{2.20}\text{Fe}_{0.94}\text{Sb}_{1.96}\text{S}_{13.91} \). (2) Herb claim, Canada; by electron microprobe, average of six analyses; corresponding to \( (\text{Pb}_{5.91}\text{Ag}_{0.07}\text{In}_{0.09}\Sigma=6.07}\text{Sn}_{1.99}\text{Fe}_{0.95}\text{Sb}_{1.90}\text{S}_{14.07} \). (3) \( \text{Pb}_6\text{Sn}_2\text{FeSb}_2\text{S}_{14} \).

**Occurrence:** On layered sulfide ore in a complex xenothermal-type hydrothermal tin deposit associated with subvolcanic granitic intrusive bodies (Andacaba deposit, Bolivia); in hydrothermal veins cutting rhyolite intrusions into highly kaolinized granite (Herb claim, Canada).

**Association:** Galena, sphalerite, smeseyite, cerussite, cassiterite, quartz (Andacaba deposit, Bolivia); galena, pyrite, sphalerite, arsenopyrite, quartz (Herb claim, Canada); arsenopyrite, pyrrhotite, stannite, jamesonite, pyrite, sphalerite, kutnahorite, quartz (Hoei mine, Japan).

**Distribution:** In the Andacaba deposit, Potosi, Bolivia [TL]. From the Herb claim, Turnagain River area, Cassiar district, British Columbia, Canada. Large crystals from the the Hoei tin mine, Oita Prefecture, Japan.

**Name:** For the type locality in Potosi, Bolivia.

**Type Material:** Mining Academy, Freiberg, Germany, 67345.


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