Paceite  \( \text{CaCu(C}_2\text{H}_3\text{O}_2)_4\cdot\text{6H}_2\text{O} \)

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Crystal Data:  Tetragonal.  \( \text{Point Group: } 4/m \).  Isolated crystals are short prisms, showing \{100\}, \{001\}, \{111\}, to 1 mm.

Physical Properties:  Cleavage:  On \{100\} and \{110\}, perfect.  Fracture:  Uneven.  Tenacity:  Brittle.  Hardness = 1.5  \( \text{D(meas.)} = \text{n.d.} \)  \( \text{D(calc.)} = 1.472 \)  Soluble in H\(_2\)O.


Optical Class:  Uniaxial (+) (synthetic).  Pleochroism:  \( O = \text{pale blue with a greenish tint; } E = \text{pale blue with a grayish tint.} \)  Absorption:  \( O \geq E. \)  \( \omega = 1.439(2) \)  \( \epsilon = 1.482(3) \)

Cell Data:  \( \text{Space Group: } I4/m. \)  \( a = 11.155(4) \)  \( c = 16.236(17) \)  \( Z = 4 \)

X-ray Powder Pattern:  Potosi pit, Australia.
7.896 (100), 3.530 (20), 5.586 (15), 8.132 (8), 9.297 (6), 2.497 (4), 3.042 (3)

Chemistry:

\[
\begin{array}{cc}
\text{Cu} & 14.1 \\
\text{Ca} & 9.0 \\
\text{C} & 21.25 \\
\text{H} & 5.3 \\
\text{O} & 50.35 \\
\hline
\text{Total} & [100.00]
\end{array}
\]

(1) Potosi pit, Australia; by AA, C and H by CHN analyzer, average of two analyses, O by difference; corresponds to \( \text{Ca}_{1.02}\text{Cu}_{1.00}\text{C}_{8.00}\text{H}_{23.77}\text{O}_{14.23} \).
(2) \( \text{CaCu(C}_2\text{H}_3\text{O}_2)_4\cdot\text{6H}_2\text{O} \).

Occurrence:  Formed in ferruginous gossan by reaction of oxidized zone metallic minerals with decaying vegetable matter provided by leaf litter and possibly mine timbers.

Association:  Hoganite, linarite, malachite, azurite, cuprian smithsonite, cerussite, goethite, hematite, quartz.

Distribution:  From the Potosi Ag–Pb–Zn mine, two km northeast of Broken Hill, New South Wales, Australia.

Name:  To honor Frank L. Pace (1948– ), Broken Hill, miner and collector of Broken Hill minerals, who first noted the mineral.

Type Material:  Broken Hill Geocentre, Broken Hill; Australian Museum, Sydney; Museum of Victoria, Melbourne, Australia, M47465.