Paceite $CaCu(C_2H_3O_2)_4 \cdot 6H_2O$

Crystal Data: Tetragonal. *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 D(meas.) = n.d. D(calc.) = 1.472 Soluble in H_2O.

Optical Properties: Translucent. *Color:* Dark sky-blue. *Streak:* Pale blue. *Luster:* Vitreous.
Optical Class: Uniaxial (+) (synthetic). *Pleochroism:* O = pale blue with a greenish tint; E = pale blue with a grayish tint. *Absorption:* $O \geq E$. $\omega = 1.439(2)$ $\epsilon = 1.482(3)$

Cell Data: *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:

	(1)	(2)
Cu	14.1	14.19
Ca	9.0	8.95
C	21.25	21.45
H	5.3	5.40
O	[50.35]	50.01
Total	[100.00]	100.00

(1) Potosi pit, Australia; by AA, C and H by CHN analyzer, average of two analyses, O by difference; corresponds to $Ca_{1.02}Cu_{1.00}C_{8.00}H_{23.77}O_{14.23}$. (2) $CaCu(C_2H_3O_2)_4 \cdot 6H_2O$.

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.

References: (1) Hibbs, D.E., U. Kolitsch, P. Leverett, J.L. Sharpe, and P.A. Williams (2002) Hoganite and paceite, two new acetate minerals from the Potosi mine, Broken Hill, Australia. Mineral. Mag., 66, 459–464. (2) Klop, E.A., A.J.M. Duisenberg, and A.L. Spek (1983) Reinvestigation of the structure of calcium copper acetate hexahydrate, $CaCu(C_2H_3O_2)_4.6H_2O$. Acta Cryst., C39, 1342–1344.