Orlandiite $Pb_3(Se^{4+}O_3)Cl_4 \cdot H_2O$

Crystal Data: Triclinic. *Point Group:* $\overline{1}$. Flattened and elongated crystals, to 0.1 mm, with ragged terminations.

Physical Properties: *Cleavage:* Perfect on {010}. *Tenacity:* Brittle. Hardness = n.d. D(meas.) = n.d. D(calc.) = 5.66

Optical Properties: Semitransparent. *Color:* Colorless to white. *Luster:* Vitreous to silky. *Optical Class:* [Biaxial.] $n = 1.96(5)$ α = n.d. β = n.d. γ = n.d. 2V(meas.) = n.d.

Cell Data: *Space Group:* $P\overline{1}$. $a = 8.136(3)$ $b = 8.430(6)$ $c = 9.233(7)$ $\alpha = 62.58(7)°$ $\beta = 71.84(4)°$ $\gamma = 75.13(4)°$ Z = 2

X-ray Powder Pattern: Baccu Locci mine, Italy; intensities calculated from the crystal structure.
4.00 (100), 3.258 (75), 3.188 (75), 3.818 (55), 3.731 (44), 2.103 (40), 2.728 (38)

Chemistry:

	(1)	(2)
SO_2	0.20	
SeO_2	12.31	12.22
FeO	0.42	
CuO	0.39	
CdO	0.11	
ZnO	0.35	
PbO	74.18	73.71
Cl	14.35	15.61
H_2O	[2.34]	1.98
$-O = Cl_2$	3.24	3.52
Total	[101.41]	100.00

(1) Baccu Locci mine, Italy; by electron microprobe, H_2O from crystal-structure analysis, confirmed by IR; corresponds to $Pb_3(SeO_3)[Cl_{3.68}(OH)_{0.32}]_{\Sigma=4.00} \cdot H_2O$. (2) $Pb_3(SeO_3)Cl_4 \cdot H_2O$.

Occurrence: In the oxidized zone of a hydrothermal base-metal deposit, in a selenium-rich part.

Association: Chalcomenite, atacamite, pseudoboléite, chlorargyrite.

Distribution: From the Baccu Locci Pb–As mine, near Villaputzu, Sarrabus district, Sardinia, Italy.

Name: To honor Paolo Orlandi (1946–), Professor of Mineralogy, University of Pisa, Pisa, Italy, who has described a variety of new minerals from Italy.

Type Material: University of Milan, Milan, Italy.

References: (1) Campostrini, I., C.M. Gramaccioli, and F. Demartin (1999) Orlandiite, $Pb_3Cl_4(SeO_3) \cdot H_2O$, a new mineral species, and an associated lead-copper selenite chloride from the Baccu Locci mine, Sardinia, Italy. Can. Mineral., 37, 1493–1498. (2) (2000) Amer. Mineral., 85, 1563 (abs. ref. 1).