

Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Crystals, to 10 μm , are elongated along [001] and flattened on (100). Also as fibers with rectangular cross-section apparently bound by {100} and {010}. Typically in random sprays or aggregates.

Physical Properties: *Cleavage:* Distinct on {010} and {100}. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = n.d. (easily crushed between two glass slides.) D(meas.) = n.d. D(calc.) = 2.934

Optical Properties: Transparent. *Color:* Pale to greenish yellow. *Streak:* Pale to greenish yellow. *Luster:* Vitreous. *Optical Class:* Biaxial (+). $\alpha = 1.747(3)$ $\beta = \text{n.d.}$ $\gamma = 1.754(3)$ 2V(meas.) = n.d. 2V(calc.) = n.d.

Cell Data: *Space Group:* $P\bar{1}$. $a = 5.383(2)$ $b = 10.363(3)$ $c = 6.878(2)$ $\alpha = 96.42(4)^\circ$ $\beta = 109.19(3)^\circ$ $\gamma = 102.30(2)^\circ$ $Z = 1$

X-ray Powder Pattern: Eduardo pegmatite mine, Conselheiro Pena, Minas Gerais, Brazil. 6.35 (100), 9.85 (95), 2.960 (39), 2.884 (35), 3.158 (32), 3.671 (29), 2.680 (29)

| Chemistry: | (1) | (2) |
|--------------------------------|----------------|--------------|
| FeO | [11.50] | 11.52 |
| Fe ₂ O ₃ | [25.56] | 25.61 |
| P ₂ O ₅ | 3.54 | |
| As ₂ O ₅ | 33.51 | 36.86 |
| <u>H₂O</u> | <u>[26.01]</u> | <u>26.01</u> |
| Total | 100.12 | 100.00 |

- (1) Eduardo pegmatite mine, Minas Gerais, Brazil; average of 4 electron microprobe analyses supplemented by IR spectroscopy, FeO:Fe₂O₃ calculated by analogy to laueite group minerals, H₂O calculated from stoichiometry; corresponds to $\text{Fe}^{2+}_{0.98}\text{Fe}^{3+}_{1.96}[(\text{AsO}_4)_{1.79}(\text{PO}_4)_{0.31}](\text{OH})_{1.52} \cdot 8.08\text{H}_2\text{O}$.
 (2) $\text{Fe}^{2+}\text{Fe}^{3+}_2(\text{AsO}_4)_2(\text{OH})_2 \cdot 8\text{H}_2\text{O}$.

Mineral Group: Laueite group.

Occurrence: Filling a miarolitic cavity in a zoned granitic pegmatite, likely replacing arsenopyrite.

Association: Pharmacosiderite, scorodite, arsenopyrite.

Distribution: From the Eduardo pegmatite mine, near Boa Vista creek, Conselheiro Pena municipality, Minas Gerais, Brazil.

Name: Honors César Mendonça Ferreira (b. 1942), Professor of Mineralogy and Gemology and founder of the Gemological Laboratory of the Federal University of Ouro Preto, Brazil.

Type Material: Museum of Science and Technology, School of Mines, Federal University of Ouro Preto, Minas Gerais, Brazil (SAA-011).

References: (1) Scholz, R., N.V. Chukanov, L.A.D. Menezes Filho, D. Atencio, L. Lagoeiro, F.M. Belotti, M.L.S.C. Chaves, A.W. Romano, P.R. Brandão, D.I. Belakovskiy, and I. Pekov (2014) Césarferreiraite, $\text{Fe}^{2+}\text{Fe}^{3+}_2(\text{AsO}_4)_2(\text{OH})_2 \cdot 8\text{H}_2\text{O}$, from Eduardo mine, Conselheiro Pena, Minas Gerais, Brazil: Second arsenate in the laueite mineral group. *Amer. Mineral.*, 99, 607-611.