Ferristrunzite $Fe^{3+}Fe^{3+}_2(PO_4)_2(OH)_3 \cdot 5H_2O$

Crystal Data: Triclinic, pseudomonoclinic. *Point Group:* $\overline{1}$ or 1. Crystals are acicular, rounded and elongated ‖ [001], in subparallel, radial, and matted aggregates, to 3 mm. *Twinning:* On {110}.

Physical Properties: *Cleavage:* One, probable, parallel *X*-*Z* OAP. *Tenacity:* Brittle. Hardness = n.d. D(meas.) = 2.38–2.50 D(calc.) = 2.55

Optical Properties: Semitransparent. *Color:* Light brownish yellow to pale orange. *Streak:* Very pale yellow.
Optical Class: Biaxial (+). *Pleochroism:* X = greenish yellow; Z = brownish yellow. *Orientation:* $Z \wedge c \simeq 17°$. *Dispersion:* Strong. *Absorption:* $Z > X$. $\alpha = 1.664(4)$ $\beta = [1.698]$ $\gamma = 1.757(5)$ 2V(meas.) = 77(10)°

Cell Data: *Space Group:* $P\overline{1}$ or $P1$. $a = 10.01(2)$ $b = 9.73(2)$ $c = 7.334(8)$ $\alpha = 90.50(12)°$ $\beta = 96.99(10)°$ $\gamma = 116.43(10)°$ Z = 2

X-ray Powder Pattern: Blaton, Belgium.
5.34 (100), 8.87 (80), 3.267 (40), 4.20 (30), 3.442 (30), 3.387 (30), 4.48 (20)

Chemistry:

	(1)	(2)
P_2O_5	28.2	28.47
Fe_2O_3	46.3	48.04
H_2O	26.0	23.49
Total	100.5	100.00

(1) Blaton, Belgium; by electron microprobe, total Fe as Fe_2O_3, confirmed by microchemical tests, H_2O by TGA-EGA; corresponds to $Fe^{3+}_{0.92}Fe^{3+}_{2.00}(PO_4)_2(OH)_{2.52} \cdot 5H_2O$.
(2) $Fe_3(PO_4)_2(OH)_3 \cdot 5H_2O$.

Occurrence: A rare secondary mineral in argillaceous and clastic sediments, probably as an oxidation product of strunzite (Blaton, Belgium).

Association: Beraunite, crandallite, diadochite, allophane–evansite, strengite, phosphosiderite, cacoxenite (Blaton, Belgium).

Distribution: From near Blaton, Belgium. In Germany, at Aprath, near Wuppertal, North Rhine-Westphalia; in the Silbergrube quarry, near Waidhaus, Bavaria; from Ventorp, near Arnsberg, North Rhein-Westphalia.

Name: For *ferric* iron in the composition and its relation to *strunzite*.

Type Material: National Museum of Natural History, Washington, D.C., USA, 162499.

References: (1) Peacor, D.R., P.J. Dunn, W.B. Simmons, and R.A. Ramik (1987) Ferristrunzite, a new member of the strunzite group, from Blaton, Belgium. Neues Jahrb. Mineral., Monatsh., 433–440. (2) (1989) Amer. Mineral., 74, 502 (abs. ref. 1). (3) Schertl, H.-P. and H. Heckmann (1988) Mineralparagenese eines neuen Ferristrunzit-Vorkommens bei Wuppertal. Emser Hefte, 9(4), 35–40 (in German). (4) Vochten, R. and E. De Grave (1990) Mössbauer- and infrared spectroscopic characterization of ferristrunzite from Blaton, Belgium. Neues Jahrb. Mineral., Monatsh., 176–190. (5) Vochten, R., E. De Grave, K. van Springel, and L. van Haverbeke (1995) Mineralogical and Mössbauerspectroscopic study of some strunzite varieties of the Silbergrube, Waidhaus, Oberpfalz, Germany. Neues Jahrb. Mineral., Monatsh., 11–25.