Zairite $Bi(Fe^{3+},Al)_3(PO_4)_2(OH)_6$

Crystal Data: Hexagonal. *Point Group:* $\overline{3}\,2/m$. As small masses.

Physical Properties: Hardness = 4.5 D(meas.) = 4.37(5) D(calc.) = 4.42(3)

Optical Properties: Translucent. *Color:* Green; greenish yellow in transmitted light.
Luster: Waxy.
Optical Class: Uniaxial (–). n = 1.82–1.83

Cell Data: *Space Group:* $R\overline{3}m$. a = 7.015(5) c = 16.365(15) Z = 3

X-ray Powder Pattern: Eta-Etu district, Congo.
2.945 (100), 5.710 (95), 3.503 (40), 2.727 (20), 2.851 (15), 2.158 (15), 1.897 (15)

Chemistry:

	(1)	(2)
SO_3	0.29	
TeO_3	0.20	
P_2O_5	21.93	21.23
SiO_2	0.33	
Al_2O_3	5.35	
Fe_2O_3	30.75	35.83
Bi_2O_3	28.71	34.85
CuO	0.82	
ZnO	0.05	
CaO	0.72	
BaO	1.98	
H_2O	9.05	8.09
Total	100.18	100.00

(1) Eta-Etu district, Congo; SrO 0.05%–0.10% present but not included in the total, corresponding to $(Bi_{0.76}Ba_{0.08}Ca_{0.08}Cu_{0.06})_{\Sigma=0.98}(Fe_{2.38}Al_{0.65})_{\Sigma=3.03}[(PO_4)_{1.91}(SiO_4)_{0.03}(SO_4)_{0.02}(TeO_4)_{0.01}]_{\Sigma=1.97}(OH)_6$. (2) $BiFe_3(PO_4)_2(OH)_6$.

Mineral Group: Crandallite group.

Occurrence: A rare mineral in the weathering zone of quartz wolframite deposits.

Association: Bismuth, bismutite, quartz, mica.

Distribution: From the Eta-Etu district, northern Kivu Province, Congo (Zaire).

Name: For the country, Zaire (now Congo), where the first specimens were collected.

Type Material: Royal Museum of Central Africa, Tervuren, Belgium, RMG14065.

References: (1) Van Wambeke, L. (1975) La zaïrite, un nouveau minéral appartenant à la série de la crandallite. Bull. Soc. fr. Minéral., 98, 351–353 (in French with English abs.). (2) (1977) Amer. Mineral., 62, 174–175 (abs. ref. 1).