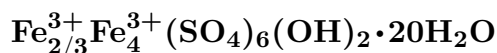


Ferricopiapite



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Crystal Data: Triclinic. *Point Group:* $\bar{1}$. [As pseudo-orthorhombic plates, tabular on {010}, multiply modified, typically in scaly or granular pulverulent aggregates.] (by analogy to copiapite group members).

Physical Properties: *Cleavage:* On {010}, perfect. Hardness = ~ 2 D(meas.) = 2.14 D(calc.) = 2.14 Soluble in H_2O .

Optical Properties: Semitransparent. *Color:* Yellow, yellow-orange.

Optical Class: Biaxial (+). *Pleochroism:* In shades of yellow. *Orientation:* $X \simeq b$.

Dispersion: $r > v$. $\alpha = 1.496\text{--}1.530$ $\beta = 1.531\text{--}1.550$ $\gamma = 1.579\text{--}1.592$ 2V(meas.) = $69^\circ\text{--}80^\circ$

Cell Data: *Space Group:* $P\bar{1}$. $a = 7.394(5)$ $b = 18.36(2)$ $c = 7.324(8)$ $\alpha = 93.8(1)^\circ$ $\beta = 102.2(1)^\circ$ $\gamma = 98.9(1)^\circ$ $Z = 1$

X-ray Powder Pattern: Challant-St. Anselme mine, Italy.

9.06 (100), 5.58 (80), 3.58 (78), 18.4 (70), 6.04 (70), 3.53 (67), 4.03 (48)

Chemistry:

	(1)	(2)
SO_3	38.82	39.01
Fe_2O_3	30.29	30.26
H_2O	31.07	30.73
Total	100.18	100.00

(1) Challant-St. Anselme mine, Italy. (2) $\text{Fe}_{2/3}^{3+}\text{Fe}_4^{3+}(\text{SO}_4)_6(\text{OH})_2 \cdot 20\text{H}_2\text{O}$.

Mineral Group: Copiapite group.

Occurrence: A secondary mineral formed typically by the weathering and oxidation of iron sulfide in a wide range of rock types, preserved in arid climates.

Association: Pyrite.

Distribution: Studied material from: in Chile, in Atacama, at Tierra Amarilla, southeast of Copiapó; in Antofagasta, from Alcaparrosa, near Cerritos Bayos and in the Sierra Gorda district, both southwest of Calama. In the Capillitas mine, Catamarca Province, Argentina. Along Cache Creek, British Columbia, Canada. In the USA, in the Campbell mine, Bisbee, Cochise Co., Arizona; at Coso Hot Springs, Inyo Co., California; in the Dexter No. 7 mine, Calf Mesa, San Rafael district, Emery Co., Utah. At the Challant-St. Anselme mine, Ayas Valley, Val d'Aosta, Piedmont, Italy.

Name: For the *ferric* iron member of the *copiapite* group.

Type Material: National Museum of Natural History, Washington, D.C., USA, 80516.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 623–627. (2) Bayliss, P. and D. Atencio (1985) X-ray powder-diffraction data and cell parameters for copiapite-group minerals. *Can. Mineral.*, 23, 53–56. (3) Fanfani, L., A. Nunzi, P.F. Zanzani, and A.R. Zanzari (1973) The copiapite problem: the crystal structure of a ferrian copiapite. *Amer. Mineral.*, 58, 314–322. (4) Ramusino, C.C. and G. Guiseppetti (1973) Ritrovamento di un materiale naturale referibile al composto sintetico: $6\text{Fe}_2(\text{SO}_4)_3 \cdot \text{Fe}_2\text{O}_3 \cdot n\text{H}_2\text{O}$ nelle miniere d'oro di Challant-St. Anselme (Valle d'Ayas). *Natura*, 64(3–4), 451–460 (in Italian with English abs.). (5) Berry, L.G. (1947) Composition and optics of copiapite. *Univ. Toronto Studies, Geol. Ser.*, 51, 21–34 [ferricopiapite].