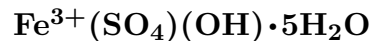


Fibroferrite



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Crystal Data: Hexagonal. *Point Group:* $\bar{3}$. Acicular crystals, elongated along {001}, to 5 mm; typically as mammillary aggregates, mats, and incrustations. *Twinning:* Repeated contact twins on {110}, yielding trillings.

Physical Properties: *Cleavage:* On {001}, perfect. Hardness = ~ 2.5 D(meas.) = 1.84–2.09 D(calc.) = 1.996 Soluble in H_2O .

Optical Properties: Translucent. *Color:* Pale yellow, straw-yellow, yellowish green, greenish gray, nearly white; colorless to pale yellow in transmitted light. *Luster:* Pearly, silky in aggregates.

Optical Class: Biaxial (+), anomalous. *Pleochroism:* Colorless to pale amber-yellow.

Orientation: $Z = c$. $\alpha = 1.518\text{--}1.533$ (variable with H_2O content) $\beta = 1.518\text{--}1.535$
 $\gamma = 1.561\text{--}1.575$ $2V(\text{meas.}) = \sim 0^\circ$

Cell Data: *Space Group:* $R\bar{3}$. $a = 24.176$ $c = 7.656$ $Z = 18$

X-ray Powder Pattern: Cetine mine, Italy.

12.10 (100), 4.57 (53), 6.98 (42), 4.07 (35), 3.346 (33), 2.784 (30), 2.989 (25)

Chemistry:

	(1)	(2)
SO_3	30.73	30.91
Fe_2O_3	30.80	30.83
H_2O	38.21	38.26
Total	99.74	100.00

(1) Saint-Félix de Paillères, France. (2) $\text{Fe}(\text{SO}_4)(\text{OH}) \cdot 5\text{H}_2\text{O}$.

Occurrence: An uncommon dehydration product of melanterite in oxidized portions of rocks and sediments containing iron sulfide, most stable in arid regions; rarely a volcanic sublimate.

Association: Melanterite, amarantite, hohmannite, krausite, coquimbite, parabutlerite, butlerite, copiapite, epsomite, gypsum, pyrite.

Distribution: Worldwide localities are too numerous to list. Studied material from: in Chile, at Tierra Amarilla, near Coquimbó, Atacama; from Quetena, west of Calama, and at Chuquicamata, Antofagasta. Thick beds in the Santa Elena mine, Quebrada de La Alcaparrosa, San Juan Province, Argentina. In the USA, in California, from Borate, about 10 km northeast of Yermo, Calico Hills, San Bernardino Co., at Island Mountain, Trinity Co., and in the Redington mine, Knoxville, Napa Co.; from the Shattuck mine, Bisbee, Cochise Co., Arizona; in Nevada, at the Cordero mine, Poalit district, Humboldt Co., in the Commonwealth mine, Galena district, Washoe Co., and elsewhere in Nevada; long crystals in the Dexter No. 7 mine, Calf Mesa, San Rafael district, Emery Co., Utah. In Canada, from Quatsino, British Columbia, and in the Sydney coal field, Cape Breton, Nova Scotia. From Saint-Félix de Paillères, Gard, France. In the Cae Coch mine, Trefriw, Gwynedd, Wales. At Skouriotissa, Cyprus. In Italy, on Capo Calamita and La Vigneria, Elba, and in the Cetine mine, near Rosia, Tuscany. At Laurium, Greece. On Valachov Hill, near Skřivaň, Czech Republic. From Špania Dolina (Herregrund), Slovakia. At volcanoes on the Kamchatka Peninsula, Russia. From Yetar Spring, near Chidlows, Western Australia.

Name: For the *fibrous* habit and essential *ferric* iron.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 614–616. (2) Cesbron, F. (1964) Contribution à la minéralogie des sulfates de fer hydratés. Bull. Minéral., 87, 125–143 (in French). (3) Sabelli, C. and A. Santucci (1987) Rare sulfate minerals from the Cetine mine, Tuscany, Italy. Neues Jahrb. Mineral., Monatsh., 171–182. (4) Scordari, F. (1981) Fibroferrite: a mineral with a $\{\text{Fe}(\text{OH})(\text{H}_2\text{O})_2\text{SO}_4\}$ spiral chain and its relationship to $\text{Fe}(\text{OH})\text{SO}_4$, butlerite and parabutlerite. Tschermarks Mineral. Petrog. Mitt., 28, 17–29.

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