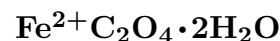


Humboldtine



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Crystal Data: Monoclinic. *Point Group:* $2/m$. Rare small crystals are prismatic along [001] or platy, showing {100}, {001}, {110}, {101}; typically in botryoidal incrusting masses with fibrous to earthy internal structure.

Physical Properties: *Cleavage:* {110}, perfect; {100} and {010}, imperfect.
Hardness = 1.5–2 D(meas.) = 2.28 D(calc.) = 2.307

Optical Properties: Transparent to translucent. *Color:* Yellow to amber-yellow. *Luster:* Dull to resinous.

Optical Class: Biaxial (+). *Pleochroism:* X = very pale yellowish green; Y = pale greenish yellow; Z = bright yellow. *Orientation:* $X = a$, $Y = b$, $Z = c$. $\alpha = \sim 1.494$ $\beta = 1.561$
 $\gamma = 1.692$ $2V(\text{meas.}) = \text{Large}$.

Cell Data: *Space Group:* $I2/c$ (synthetic). $a = 9.707(1)$ $b = 5.556(1)$ $c = 9.921(1)$
 $\beta = 104.50(1)^\circ$ $Z = 4$

X-ray Powder Pattern: Synthetic.

4.80 (100), 4.70 (65), 3.004 (50), 2.654 (30), 3.880 (25), 3.597 (25), 2.616 (25)

Chemistry:

	(1)	(2)
C ₂ O ₃	40.18	40.03
FeO	40.72	39.94
MgO	trace	
H ₂ O	[19.10]	20.03
Total	[100.00]	100.00

(1) Capo d'Arco, Elba, Italy. (2) FeC₂O₄•2H₂O (ferrous oxalate).

Occurrence: Typically coating fractures in brown coal deposits; very rarely in granite pegmatites and hydrothermal mineral deposits.

Association: Gypsum, tschermigite (coal seams); cassiterite, tourmaline, quartz (pegmatites and hydrothermal).

Distribution: In the Czech Republic, from Korožluky (Korožoluk), southwest of Bílina (Bilin), at Čermnky (Tschermig), Lužice (Luschitz), and Lomnice, near Sokolov (Lant, near Falkenau). In Germany, at Grossalmerode, Hesse; from Potschappel, south of Dresden, Saxony; at Sailauf, northeast of Aschaffenburg, Spessart Mountains, Bavaria. In the Pendarves mine, Camborne, Cornwall, England. At Capo d'Arco and Capo Calamita, Elba, Italy. From Kettle Point and in the Francon quarry, Montreal Island, Montreal, Quebec, Canada. From Santa Maria de Itabira, Minas Gerais, Brazil.

Name: Honors Friedrich Heinrich Alexander von Humboldt (1769–1859), German naturalist and explorer.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 1102–1103. (2) Mazzi, F. and C. Garavelli (1957) La struttura della oxalite: FeC₂O₄•2H₂O. Per. Mineral., 26, 269–303 (in Italian with English abs.). (3) (1972) NBS Mono. 25, 10, 24.