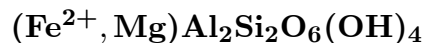


Ferrocarcholite



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Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Crystals prismatic, elongated along [001], or as aggregates of parallel fibers, to 5 cm.

Physical Properties: *Cleavage:* Perfect on {010}, indistinct on {110}. Hardness = 5.5
D(meas.) = 3.04 D(calc.) = 3.05

Optical Properties: Transparent to translucent. *Color:* Dark green, bright green, grayish green; colorless in thin section.

Optical Class: Biaxial (-). *Pleochroism:* X = yellowish to greenish; Y = colorless to yellowish; Z = pale bluish to bluish green. *Orientation:* X = b; Y = a; Z = c. *Dispersion:* $r > v$, weak to strong. *Absorption:* $X > Y > Z$. $\alpha = 1.614\text{--}1.628$ $\beta = 1.627\text{--}1.644$ $\gamma = 1.632\text{--}1.647$
2V(meas.) = $49^\circ\text{--}70^\circ$

Cell Data: *Space Group:* $Ccca$. $a = 13.797(9)$ $b = 20.20(2)$ $c = 5.116(5)$ $Z = 8$

X-ray Powder Pattern: Haute-Ubaye district, France.

5.04 (100), 5.69 (70), 3.355 (30), 2.603 (25), 3.019 (20), 1.680 (11), 3.44 (10)

Chemistry:

	(1)	(2)
SiO ₂	37.59	38.56
TiO ₂	0.22	0.30
Al ₂ O ₃	29.39	31.68
Fe ₂ O ₃	2.07	1.65
FeO	17.98	12.21
MnO	0.14	0.32
MgO	2.52	4.65
H ₂ O	10.08	11.02
Total	[99.99]	[100.39]

(1) West of Tomata, Celebes, Indonesia; after deduction of CaO 0.13%, Na₂O 0.14%, K₂O 0.09%, SO₃ 0.12%; corresponds to $(\text{Fe}_{0.81}^{2+}\text{Mg}_{0.20}\text{Mn}_{0.01})_{\Sigma=1.02}(\text{Al}_{1.87}\text{Fe}_{0.08}^{3+}\text{Ti}_{0.01})_{\Sigma=1.96}\text{Si}_{2.03}\text{O}_{9.87}\text{H}_{3.64}$.

(2) Haute-Ubaye district, France; after deduction of Na₂O 0.23% and K₂O 0.45% as mica; corresponds to $(\text{Fe}_{0.53}^{2+}\text{Mg}_{0.36}\text{Mn}_{0.01})_{\Sigma=0.90}(\text{Al}_{1.95}\text{Fe}_{0.06}^{3+})_{\Sigma=2.01}\text{Si}_{2.01}\text{O}_6(\text{OH})_4$.

Polymorphism & Series: Forms two series, with carpholite, and with magnesiocarpholite.

Occurrence: In quartz veins in blueschists of low metamorphic grade, formed from felsic tuffs at about 250 °C and 3 kbar.

Association: Quartz, glaucophane, lawsonite, pumpellyite, jadeite, stilpnomelane.

Distribution: At several localities west of Tomata, Celebes, Indonesia. In the Diahot region, New Caledonia. From Italy, at Colle Ciarbonet, Piedmont. From the Vanoise massif, Savoie, and Pic du Pelvat, Haute-Ubaye district, Alpes-de-Haute Provence, France. At Ruwi, Oman.

Name: The FERROus iron analogue of *carpholite*.

Type Material: National Museum of Natural History, Washington, D.C., USA, 106754.

References: (1) De Roever, W.P. (1951) Ferrocarcholite, the hitherto unknown ferrous iron analogue of carpholite proper. *Amer. Mineral.*, 36, 736–745. (2) De Roever, W.P. and C. Kieft (1971) Additional data on ferrocarcholite from Sulawesi (Celebes), Indonesia. *Amer. Mineral.*, 56, 1976–1982. (3) Steen, D. and J. Bertrand (1977) Sur la présence de ferrocarcholite associée aux schistes à glaucophane de Haute-Ubaye (Basses-Alpes, France). *Schweiz. Mineral. Petrog. Mitt.*, 57, 157–168 (in French with English abs.). (4) Ferraris, G., G. Ivaldi, and B. Goffé (1992) Structural study of a magnesian ferrocarcholite: are carpholites monoclinic? *Neues Jahrb. Mineral., Monatsh.*, 337–347.

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