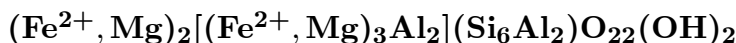


Ferro-gedrite

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Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. As prismatic to bladed crystals; also fibrous.

Physical Properties: *Cleavage:* Perfect on {210}, intersecting at 54° and 126° .
Tenacity: Brittle. Hardness = 5.5–6 D(meas.) = 3.566 D(calc.) = 3.562

Optical Properties: Transparent to translucent. *Color:* Gray, brown. *Luster:* [Vitreous.]
Optical Class: Biaxial (–). *Pleochroism:* X = pale green; Y = brownish green; Z = greenish blue. *Orientation:* X = a; Y = b; Z = c. *Dispersion:* $r < v$. $\alpha = 1.690\text{--}1.695$ $\beta = 1.705\text{--}1.710$ $\gamma = 1.718\text{--}1.725$ $2V(\text{meas.}) = \sim 82^\circ$

Cell Data: *Space Group:* $Pnma$. $a = 18.514$ $b = 17.945$ $c = 5.315$ $Z = 4$

X-ray Powder Pattern: Mt. Yakushi, Japan.

8.23 (100), 3.043 (75), 3.221 (20), 8.95 (12), 4.632 (10), 2.679 (10), 2.581 (10)

Chemistry:	(1)	(2)		(1)	(2)
SiO ₂	38.41	36.53	CaO	0.03	0.11
TiO ₂	0.48	0.07	Na ₂ O	1.16	2.06
Al ₂ O ₃	19.72	18.80	K ₂ O	0.04	0.00
Fe ₂ O ₃	2.21		F	0.13	
FeO	33.54	39.18	H ₂ O ⁺	2.06	
MnO	2.30	0.42	–O = F ₂	0.06	
MgO	0.03	0.30	Total	[100.05]	97.47

(1) Mt. Yakushi, Japan; adjusted for removal of estimated 6% chamosite contamination, original total given as 99.92%; corresponds to $(\text{Fe}_{4.40}^{2+}\text{Na}_{0.33}\text{Mn}_{0.31}\text{Mg}_{0.01}\text{K}_{0.01})_{\Sigma=5.06}(\text{Al}_{1.68}\text{Fe}_{0.35}^{3+}\text{Ti}_{0.06})_{\Sigma=2.09}(\text{Si}_{6.03}\text{Al}_{1.97})_{\Sigma=8.00}\text{O}_{22}[(\text{OH})_{2.15}\text{F}_{0.06}]_{\Sigma=2.21}$. (2) Kawai mine, Japan; by electron microprobe.

Polymorphism & Series: Forms a series with magnesio-gedrite and gedrite.

Mineral Group: Amphibole (Fe–Mn–Mg) group; $\text{Mg}/(\text{Mg} + \text{Fe}^{2+}) < 0.10$; $(\text{Ca} + \text{Na})_{\text{B}} < 1.34$; $\text{Li} < 1.0$; $\text{Si} < 7.0$.

Occurrence: In contact metamorphosed pelitic rocks.

Association: Chamosite, chlorite, andalusite, cordierite, garnet, muscovite, biotite, spinel, quartz, labradorite, magnetite, graphite.

Distribution: On Mt. Yakushi, Miyamori district, Kitakami Mountainland, Iwate Prefecture, and in the Kawai mine, Ena, Gifu Prefecture, Japan. From Fiskensættet, Greenland. At Turbeoshov, Shuyskaya, Karelia. From Spitzbergen, Harz Mountains, Germany.

Name: For *ferrous* iron in its composition and similarity to *gedrite*.

Type Material: n.d.

References: (1) Seki, Y. and M. Yamasaki (1957) Aluminian ferroanthophyllite from the Kitakami Mountainland, northeastern Japan. *Amer. Mineral.*, 42, 506–520. (2) Matsubara, S., A. Kato, and M. Nomura (1979) The occurrence of ferrogedrite from the Kawai mine, Ena, Gifu Prefecture, Japan. *Bull. National Science Museum, Tokyo, Ser. C, Geol.*, 6, 107–113. (3) (1982) *Mineral. Abs.*, 33, 298 (abs. ref. 2). (4) Phillips, W.R. and D.T. Griffen (1981) Optical mineralogy, 223–225.

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