

# Pumpellyite-(Fe<sup>2+</sup>)      Ca<sub>2</sub>(Fe<sup>2+</sup>, Fe<sup>3+</sup>, Mg)Al<sub>2</sub>(SiO<sub>4</sub>)(Si<sub>2</sub>O<sub>7</sub>)(OH)<sub>2</sub>•H<sub>2</sub>O

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**Crystal Data:** Monoclinic. *Point Group:* 2/*m*. As rosettes and spherulites in stringers.

**Physical Properties:** Hardness = [~5] (by analogy to the pumpellyite group).  
D(meas.) = 3.31    D(calc.) = [3.35]

**Optical Properties:** Semitransparent. *Color:* [Greenish black.] *Luster:* [Vitreous.]  
*Optical Class:* Biaxial (-). *Pleochroism:* X = pale yellow; Y = deep grass-green; Z = yellowish brown to reddish brown. *Orientation:* Z ∧ c = 5°.    α = 1.728    β = 1.748    γ = 1.754  
2V(meas.) = -60° to 30°

**Cell Data:** *Space Group:* n.d.    a = 8.89(2)    b = 6.03(3)    c = 19.19(4)    β = 97°49(12)'  
Z = 4

**X-ray Powder Pattern:** Noril'sk, Russia.

2.91 (100), 3.79 (64), 2.75 (60), 2.22 (36), 2.66 (34), 4.76 (30), 4.43 (27)

**Chemistry:**

	(1)
SiO <sub>2</sub>	34.83
TiO <sub>2</sub>	0.10
Al <sub>2</sub> O <sub>3</sub>	10.10
Fe <sub>2</sub> O <sub>3</sub>	18.05
FeO	9.09
MnO	0.02
MgO	0.94
CaO	20.50
Na <sub>2</sub> O	0.18
H <sub>2</sub> O <sup>+</sup>	5.62
Total	99.43

(1) Noril'sk, Russia; corresponds to (Ca<sub>1.94</sub>Na<sub>0.03</sub>Fe<sub>0.02</sub><sup>2+</sup>)<sub>Σ=1.99</sub>(Fe<sub>0.65</sub>Fe<sub>0.25</sub><sup>3+</sup>Mg<sub>0.12</sub>)<sub>Σ=1.02</sub>(Al<sub>1.06</sub>Fe<sub>0.95</sub><sup>3+</sup>)<sub>Σ=2.01</sub>Si<sub>3.08</sub>O<sub>11</sub>(OH)<sub>2</sub>•1.32H<sub>2</sub>O.

**Polymorphism & Series:** Forms two series, with julgoldite-(Fe<sup>2+</sup>), and with pumpellyite-(Mg).

**Mineral Group:** Pumpellyite group.

**Occurrence:** In the contact zone around an intrusive.

**Association:** Prehnite, babingtonite, clinopyroxene, calcite.

**Distribution:** From near Noril'sk, western Siberia, Russia.

**Name:** For its membership in the *pumpellyite* group and dominant *ferrous iron* content.

**Type Material:** n.d.

**References:** (1) Zolotukhin, V.V., Y.R. Vasil'yev, and N.I. Zyuzin (1965) Iron-rich pumpellyite from the Noril'sk district and a new diagram for pumpellyites. *Doklady Acad. Nauk SSSR*, 165, 1156–1159 (in Russian). (2) Passaglia, E. and G. Gottardi (1973) Crystal chemistry and nomenclature of pumpellyites and julgoldites. *Can. Mineral.*, 12, 219–223. (3) (1976) *Amer. Mineral.*, 61, 176–177 (abs. ref. 2). (4) Deer, W.A., R.A. Howie, and J. Zussman (1986) *Rock-forming minerals*, (2nd edition), v. 1B, disilicates and ring silicates, 201–247.