Pumpellyite-(Fe$^{2+}$)  \[ \text{Ca}_2(\text{Fe}^{2+}, \text{Fe}^{3+}, \text{Mg})\text{Al}_2(\text{SiO}_4)(\text{Si}_2\text{O}_7)(\text{OH})_2 \cdot \text{H}_2\text{O} \]

Crystal Data: Monoclinic.  \( \text{Point Group: } 2/m \). As rosettes and spherulites in stringers.

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

Optical Properties: Semitransparent.  \( \text{Color: } [\text{Greenish black.}] \)  \( \text{Luster: } [\text{Vitreous.}] \)  
\( \text{Optical Class: } \text{Biaxial } (-). \)  \( \text{Pleochroism: } X = \text{pale yellow}; Y = \text{deep grass-green}; Z = \text{yellowish brown to reddish brown.} \)  \( \text{Orientation: } Z \wedge c = 5^\circ. \)  \( \alpha = 1.728 \)  \( \beta = 1.748 \)  \( \gamma = 1.754 \)  
2V(meas.) = \(-60^\circ \) to \( 30^\circ \)

Cell Data:  \( \text{Space Group: } \text{n.d.} \)  
\( a = 8.89(2) \quad b = 6.03(3) \quad c = 19.19(4) \quad \beta = 97^\circ49(12)^\prime \)  
\( Z = 4 \)

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:

\[
\begin{array}{ll}
\text{SiO}_2 & 34.83 \\
\text{TiO}_2 & 0.10 \\
\text{Al}_2\text{O}_3 & 10.10 \\
\text{Fe}_2\text{O}_3 & 18.05 \\
\text{FeO} & 9.09 \\
\text{MnO} & 0.02 \\
\text{MgO} & 0.94 \\
\text{CaO} & 20.50 \\
\text{Na}_2\text{O} & 0.18 \\
\text{H}_2\text{O}^+ & 5.62 \\
\text{Total} & 99.43 \\
\end{array}
\]

(1) Noril’sk, Russia; corresponds to  \( (\text{Ca}_{1.94}\text{Na}_{0.03}\text{Fe}_{0.02}^{2+})_{\Sigma=1.99}(\text{Fe}_{0.65}\text{Fe}_{0.25}^{3+}\text{Mg}_{0.12})_{\Sigma=1.02} \)  
(\( \text{Al}_{1.08}\text{Fe}_{0.05}^{3+})_{\Sigma=2.0}\text{Si}_{3.08}\text{O}_{11}(\text{OH})_2 \cdot 1.32\text{H}_2\text{O} \).

Polymorphism & Series: Forms two series, with julgoldite-(Fe$^{2+}$), 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.