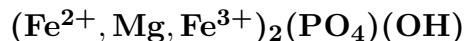


Satterlyite



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Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m, 3m$, or 32 . Grains, to 4 cm, elongated along [0001], in radiating aggregates in nodules.

Physical Properties: Hardness = 4.5–5 D(meas.) = 3.68(5) D(calc.) = 3.60

Optical Properties: Translucent. *Color:* Pale yellow to pale brown. *Streak:* Pale yellow. *Luster:* Vitreous.

Optical Class: Uniaxial (–), may be biaxial. *Pleochroism:* $O =$ pale yellow; $E =$ brownish yellow, in thick grains. *Absorption:* $E > O$. $\omega = 1.718\text{--}1.721$ $\epsilon = 1.716\text{--}1.719$ $2V(\text{meas.}) = 10^\circ\text{--}20^\circ$

Cell Data: *Space Group:* $P\bar{3}1m, P31m$, or $P312$. $a = 11.361$ $c = 5.041$ $Z = 6$

X-ray Powder Pattern: Big Fish River, Canada.

2.473 (100), 2.840 (80), 3.520 (70), 1.447 (60), 4.49 (50), 2.990 (40), 1.886 (40)

Chemistry:

| | (1) |
|--------------------------------|-------|
| P ₂ O ₅ | 34.8 |
| SiO ₂ | 0.2 |
| Fe ₂ O ₃ | 7.5 |
| FeO | 43.1 |
| MnO | 1.3 |
| MgO | 7.1 |
| Na ₂ O | 1.5 |
| H ₂ O | 5.2 |
| Total | 100.7 |

(1) Big Fish River, Canada; by electron microprobe, average of five grains, Fe²⁺:Fe³⁺ from wet chemical determination, H₂O by the Penfield method; corresponding to (Fe_{1.21}²⁺Mg_{0.36}Fe_{0.19}³⁺H_{0.16}Na_{0.10}Mn_{0.04})_{Σ=2.06}[(P_{0.99}Si_{0.01})_{Σ=1.00}O₄](OH)_{1.00}.

Occurrence: In nodules in shales.

Association: Quartz, pyrite, wolfeite, marićite.

Distribution: From the Big Fish River area, Yukon Territory, Canada.

Name: To honor Dr. Jack Satterly (1906–1993), geologist, Ontario Department of Mines and Royal Ontario Museum, Toronto, Canada.

Type Material: Royal Ontario Museum, Toronto, Canada, M34649; National Museum of Natural History, Washington, D.C., USA, 145743.

References: (1) Mandarino, J.A., B.D. Sturman, and M.I. Corlett (1978) Satterlyite, a new hydroxyl-bearing ferrous phosphate from the Big Fish River area, Yukon Territory. *Can. Mineral.*, 16, 411–413. (2) (1979) *Amer. Mineral.*, 64, 657–658 (abs. ref. 1).