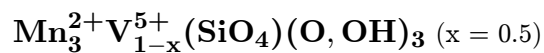


Franciscanite

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Crystal Data: Hexagonal. *Point Group:* 3. As irregular grains to 1.0 mm.

Physical Properties: *Fracture:* Uneven. Hardness = ~ 4 D(meas.) = 4.1(3)
D(calc.) = 3.97 May be weakly magnetic, possibly resulting from tiny opaque inclusions.

Optical Properties: Transparent. *Color:* Cherry-red when fresh, darkening to brownish red with exposure. *Streak:* Brownish red. *Luster:* Vitreous.
Optical Class: Uniaxial (+). *Pleochroism:* Strong; *O* = wine-red; *E* = dark red to nearly black.
Absorption: Intense; *E* > *O*. $\omega = 1.856(3)$ $\epsilon = 1.882(3)$

Cell Data: *Space Group:* *P*3. $a = 8.1518(3)$ $c = 4.8091(2)$ $Z = 2$

X-ray Powder Pattern: Pennsylvania mine, California, USA.
2.331 (100), 3.105 (90), 2.844 (90), 1.785 (70), 1.538 (50), 2.668 (40), 3.97 (30)

Chemistry:

	(1)
SiO ₂	18.4
Fe ₂ O ₃	0.0
Al ₂ O ₃	0.0
WO ₃	0.0
Sb ₂ O ₅	0.0
As ₂ O ₅	0.0
V ₂ O ₅	13.5
MnO	64.9
MgO	0.0
H ₂ O	[3.4]
Total	[100.2]

(1) Pennsylvania mine, California, USA; by electron microprobe, H₂O by analogy to welinite; corresponds to Mn_{2.98}V_{0.49}(SiO₄)(O, OH)_{~3}.

Occurrence: As sparse, irregular segregations within a sheared sonolite-bearing assemblage in chert.

Association: Sonolite, hausmannite, braunite, gageite.

Distribution: From the Pennsylvania mine, San Antonio Valley, Santa Clara Co., California, USA.

Name: For the Franciscan complex of California, USA, where it was found.

Type Material: National Museum of Natural History, Washington, D.C., USA, 163041.

References: (1) Dunn, P.J., D.R. Peacor, R.C. Erd, and R.A. Ramik (1986) Franciscanite and örebroite, two new minerals from California and Sweden, related to redefined welinite. *Amer. Mineral.*, 71, 1522–1526. (2) Pertlik, F. (1986) The crystal structure of franciscanite, Mn₃(V_x□_{1-x})(SiO₄)(O, OH)₃, [x $\cong$ 0.5]. *Neues Jahrb. Mineral., Monatsh.*, 493–499.