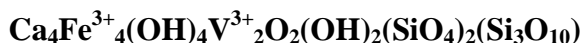


Cassagnaite

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As prismatic to tabular {001} crystals, usually elongated along [100], to 0.1 mm, exhibiting forms {011}, {001} and {100}; as entangled aggregates.

Physical Properties: *Cleavage:* {001} (or parting). *Tenacity:* Brittle.
Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.22

Optical Properties: Transparent. *Color:* Golden brown. *Streak:* Nearly white. *Luster:* Vitreous.
Pleochroism: Very weak; *N* = golden yellow-brown, *n* = pale golden yellow-brown.
Optical Class: Biaxial. *N* (parallel to *a*) = 1.810(5) *n* = 1.800(5)

Cell Data: *Space Group:* Cmc₂m. *a* = 6.066(1) *b* = 8.908(1) *c* = 18.995(2) *Z* = 2

X-ray Powder Pattern: Cassagna mine, Italy.
9.52 (100), 2.66 (70), 2.54 (65), 4.85 (50), 4.98 (45), 4.03 (40), 2.32 (40)

Chemistry:	(1)	(2)	(3)
CaO	17.85–18.93	18.42	18.42
MnO	14.61–15.20	14.98	5.20
Mn ₂ O ₃			10.88
Fe ₂ O ₃	12.37–13.02	12.61	12.61
Al ₂ O ₃	6.71–8.49	7.55	7.55
MgO	2.07–2.61	2.36	2.36
V ₂ O ₃	5.04–5.84	5.42	5.42
SiO ₂	29.25–33.75	31.69	31.69
<u>H₂O_{calc}</u>			<u>5.87</u>
Total			100.00

(1) Cassagna mine, Italy; range of 7 electron microprobe analyses, OH⁻ confirmed by micro-Raman analysis. (2) Cassagna mine, Italy; mean of 7 electron microprobe analyses. (3) Cassagna mine, Italy; H₂O by difference, (Ca + Mn²⁺) recalculated to equal 4 wt%; corresponding to Ca_{3.3}Mn²⁺_{0.7}Fe³⁺_{1.6}Mn³⁺_{1.4}Al_{1.5}V³⁺_{0.7}Mg_{0.6}Si_{5.2}O₂₆H_{6.5}.

Occurrence: Filling fractures in braunite and quartz layered mineralization developed under prehnite-pumpellyite facies metamorphism.

Association: Braunite, quartz, piemontite.

Distribution: At the Cassagna mine, Graveglia manganese district, Northern Apennines, Liguria, Italy.

Name: For the locality that produced the first specimens, the Cassagna mine, Italy.

Type Material: Dipartimento per lo Studio del Territorio e delle sue Risorse (Dip.Te.Ris), University of Genoa, Italy.

References: (1) Basso, R., C. Carbone, and A. Palenzona (2008) Cassagnaite, a new, V-bearing silicate mineral from the Cassagna mine, northern Apennines, Italy. *Eur. J. Mineral.*, 20, 95–100. (2) (2008) *Amer. Mineral.*, 93, 1686-7 (abs. ref. 1).