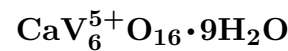


Hewettite



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Crystal Data: Monoclinic. *Point Group:* $2/m$. As needles and fibers, elongated and intertwined || [010], to 2 cm; in nodular aggregates, as fracture fillings, and coatings.

Physical Properties: Hardness = Extremely soft. $D(\text{meas.}) = 2.51\text{--}2.61$ $D(\text{calc.}) = 2.67$
Reversibly dehydrates to metahebettite.

Optical Properties: Transparent. *Color:* Deep red, to chocolate-brown on exposure; red to orange in transmitted light. *Luster:* Silky to adamantine.

Optical Class: Biaxial (–). *Pleochroism:* $X = Y$ = light yellow-orange; Z = dark red.

Orientation: $Z = c$. $\alpha = 1.77$ $\beta = 2.18$ $\gamma = 2.35\text{--}2.4$ $2V(\text{meas.}) = \text{Medium}$.

Cell Data: *Space Group:* $P2_1/m$. $a = 12.290(1)$ $b = 3.590(1)$ $c = 11.174(2)$
 $\beta = 97.24(1)^\circ$ $Z = 1$

X-ray Powder Pattern: Monument No. 2 mine, Arizona, USA.

11.03 (100), 5.53 (35), 2.164 (25), 3.091 (20), 3.660 (14), 5.63 (12), 2.574 (12)

Chemistry:

	(1)	(2)
MoO ₃	0.99	
V ₂ O ₅	71.20	71.43
V ₂ O ₄	0.43	
CaO	7.15	7.34
H ₂ O	21.04	21.23
Total	100.81	100.00

(1) Minasragra, Peru. (2) $\text{CaV}_6\text{O}_{16}\cdot 9\text{H}_2\text{O}$.

Occurrence: As an alteration product of patronite (Minasragra, Peru); an alteration product of less-oxidized vanadium minerals in Colorado Plateau-type U–V deposits.

Association: Metahebettite, corvusite, montroseite, rauvite, steigerite, fervanite, navajoite, carnotite, tyuyamunite (Colorado Plateau deposits, USA).

Distribution: From Minasragra, 46 km from Cerro de Pasco, Peru. In the USA, in the Jo Dandy mine, Bull Canyon district, Paradox Valley, Uravan district, Montrose Co., Colorado; in Utah, from the Cactus Rat mine group, Yellow Cat district, 24 km southeast of Thompson, Grand Co.; in Arizona, long fibers from the Monument No. 2 mine, Monument Valley, also in the Carrizo and Lukachukai Mountains, Apache Co., and in the Monument No. 1 and Mitten No. 2 mines, Navajo Co.; in the Gold Quarry mine, near Carlin, Maggie Creek district, Eureka Co., Nevada. From the Edgemont district, Fall River Co., South Dakota; and in the Wilson Springs (Potash Sulphur Springs) mine, Garland Co., Arkansas. In several mines of the Kurumsak and Balasauskandyk districts, northwestern Kara-Tau Mountains, Kazakhstan.

Name: For Donnel Foster Hewett (1881–1971), geologist with the U.S. Geological Survey, who described the mineralogy of Minasragra, Peru.

Type Material: National Museum of Natural History, Washington, D.C., USA, 87459.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 1060–1061. (2) Bayliss, P. (1982) X-ray powder data for hewettite. *Mineral. Mag.*, 46, 503–504. (3) Evans, H.T., Jr. (1989) The crystal structure of hewettite. *Can. Mineral.*, 27, 181–188. (4) Evans, H.T., Jr. and J.M. Hughes (1990) Crystal chemistry of the natural vanadium bronzes. *Amer. Mineral.*, 75, 508–521, esp. 513–514.