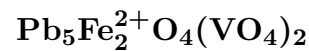


Heyite



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Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals elongate along [010] and tabular on {100}, to 0.4 mm; common forms {100}, {001}, $\{\bar{1}01\}$, and {110}; as composite “bow tie” groups. *Twinning:* Common on {110}, forming a “Y”-shaped doublet or “K”-shaped triplet.

Physical Properties: *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = 4
D(meas.) = 6.3(2) D(calc.) = 6.284

Optical Properties: Transparent. *Color:* Marigold-orange, orange-brown; yellow-orange in transmitted light. *Streak:* Amber-yellow. *Luster:* Vitreous.

Optical Class: Biaxial (+). *Orientation:* $Y = b$; $X \wedge c = 36^\circ$. *Dispersion:* $r > v$, weak.
 $\alpha = 2.185(1)$ $\beta = 2.219(1)$ $\gamma = 2.266(1)$ $2V(\text{meas.}) = 89^\circ$ $2V(\text{calc.}) = 82^\circ$

Cell Data: *Space Group:* $P2_1/m$. $a = 8.910(4)$ $b = 6.017(4)$ $c = 7.734(4)$
 $\beta = 111^\circ 53(4)'$ $Z = 1$

X-ray Powder Pattern: Betty Jo claim, Nevada, USA.

3.248 (100), 2.970 (69), 2.767 (61), 4.873 (46), 3.674 (35), 2.306 (33), 3.010 (29)

Chemistry:

	(1)	(2)
P ₂ O ₅	n.d.	
V ₂ O ₅	13.00	12.62
FeO	8.65	9.97
MnO	n.d.	
ZnO	0.83	
PbO	77.52	77.41
LOI	0.00	
Total	[100.00]	100.00

(1) Betty Jo claim, Nevada, USA; by electron microprobe, average of three analyses, normalized from a total of 97.3% to 100%, total Fe as FeO; corresponding to $\text{Pb}_{5.01}(\text{Fe}_{1.71}\text{Zn}_{0.17})_{\Sigma=1.88}\text{O}_{3.80}(\text{VO}_4)_{2.06}$. (2) $\text{Pb}_5\text{Fe}_2\text{O}_4(\text{VO}_4)_2$.

Occurrence: A very rare secondary mineral in the oxidized portions of a polymetallic sulfide deposit (Betty Jo claim, Nevada, USA); along a fault through a stockwork disseminated gold deposit (Gold Quarry mine, Nevada, USA).

Association: Tungstenian wulfenite, pyromorphite, mimetite, cerussite, shattuckite, chrysocolla, quartz (Betty Jo claim, Nevada, USA).

Distribution: From the Betty Jo claim, about 13 km southeast of Ely, Nevada district, White Pine Co., in the Gold Quarry mine, near Carlin, Maggie Creek district, Eureka Co., and at the Silver Coin mine, near Valmy, Iron Point district, Humboldt Co., Nevada, USA. From the Kusu vanadium deposit, 85 km south of Kinshasa, Bas-Congo Province, Congo (Bas-Zaire Province, Zaire).

Name: Honors Dr. Max Hutchinson Hey (1904–1984), eminent British mineralogist and chemist, British Museum (Natural History), London, England.

Type Material: The Natural History Museum, London, England, 1972,194; National Museum of Natural History, Washington, D.C., USA, 127424, 135056.

References: (1) Williams, S.A. (1973) Heyite, $\text{Pb}_5\text{Fe}_2(\text{VO}_4)_2\text{O}_4$, a new mineral from Nevada. *Mineral. Mag.*, 39, 65–68. (2) (1974) *Amer. Mineral.*, 59, 382 (abs. ref. 1). (3) Symes, R.F. and S.A. Williams (1973) Heyite and brackebuschite compared. *Mineral. Mag.*, 39, 69–73.

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