

Montanite



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Crystal Data: n.d. *Point Group:* n.d. Fibrous, earthy to compact, massive.

Physical Properties: Hardness = "Soft". $D(\text{meas.}) = 3.7(1)$ $D(\text{calc.}) = \text{n.d.}$

Optical Properties: Opaque. *Color:* Pale yellow, pale green, white. *Luster:* Dull to waxy. *Optical Class:* Biaxial (-), birefringence 0.01, exhibiting anomalous green interference colors. *Dispersion:* $r < v$, extreme. $n = 2.09(3)$ $\alpha = \text{n.d.}$ $\beta = \text{n.d.}$ $\gamma = \text{n.d.}$ $2V(\text{meas.}) = \text{Small.}$

Cell Data: *Space Group:* n.d. $Z = \text{n.d.}$

X-ray Powder Pattern: Highland, Montana, USA. (ICDD 38-418).

3.49 (100), 1.896 (100), 2.576 (75), 1.503 (50), 3.187 (40), 2.027 (40), 1.255 (35)

Chemistry:	(1)	(2)	(3)
TeO ₃	26.83	26.46	25.91
Bi ₂ O ₃	66.78	53.70	68.77
Fe ₂ O ₃	0.56		
PbO	0.39	11.89	
CaO		0.77	
H ₂ O	[5.44]	[7.18]	5.32
Total	[100.00]	[100.00]	100.00

(1) Highland, Montana, USA; H₂O by difference. (2) Nizhni Priamur'ya, Russia; H₂O by difference; corresponds to $(\text{Bi}_{1.16}\text{Pb}_{0.50}\text{Ca}_{0.30})_{\Sigma=1.96}\text{Te}_{1.87}\text{O}_6 \cdot n\text{H}_2\text{O}$. (3) Bi₂TeO₆ · 2H₂O.

Occurrence: An alteration product of tetradyomite.

Association: Tetradyomite, bismuthinite.

Distribution: In the USA, from Highland, Silver Bow Co., and in German Gulch, Deer Lodge Co., Montana; at the Little Joe mine, Tombstone, Cochise Co., Arizona; from near Hatchita, Hidalgo Co., New Mexico. In Russia, from Nizhni Priamur'ya, otherwise not located. At Norongo, Captain's Flat, New South Wales, Australia. From Nyirjes, near Gyöngyösslymos, Mátra Mountains, Hungary.

Name: For its occurrence in Montana, USA.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 636–637. (2) Kazachenko, V.T., I.I. Fat'yanov, and V.M. Chubarov (1980) Discovery of a lead-containing variety of montanite. Doklady Acad. Nauk SSSR, 255, 968–971. (3) (1981) Chem. Abs., 94, 203 (abs. ref. 2).