

# Montanite



©2001-2005 Mineral Data Publishing, version 1

**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 <sub>3</sub>	26.83	26.46	25.91
Bi <sub>2</sub> O <sub>3</sub>	66.78	53.70	68.77
Fe <sub>2</sub> O <sub>3</sub>	0.56		
PbO	0.39	11.89	
CaO		0.77	
H <sub>2</sub> O	[5.44]	[7.18]	5.32
Total	[100.00]	[100.00]	100.00

(1) Highland, Montana, USA; H<sub>2</sub>O by difference. (2) Nizhni Priamur'ya, Russia; H<sub>2</sub>O 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) Bi<sub>2</sub>TeO<sub>6</sub> · 2H<sub>2</sub>O.

**Occurrence:** An alteration product of tetradymite.

**Association:** Tetradymite, 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).