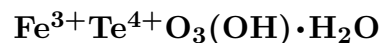


# Sonoraite



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**Crystal Data:** Monoclinic. *Point Group:*  $2/m$ . Bladelike crystals, to 2 mm, flattened on {100}, in subparallel sheaves and rosettes.

**Physical Properties:** Hardness =  $\sim 3$  D(meas.) = 3.95(1) D(calc.) = 4.18

**Optical Properties:** Transparent. *Color:* Dark yellowish green. *Luster:* Vitreous. *Optical Class:* Biaxial (-).  $\alpha = 2.018(3)$   $\beta = 2.023(3)$   $\gamma = 2.025(3)$   $2V(\text{meas.}) = 20^\circ\text{--}25^\circ$

**Cell Data:** *Space Group:*  $P2_1/c$ .  $a = 10.984(2)$   $b = 10.268(1)$   $c = 7.917(2)$   
 $\beta = 108.49(2)^\circ$   $Z = 8$

**X-ray Powder Pattern:** Moctezuma mine, Mexico.  
10.4 (10), 4.66 (8), 3.110 (8), 3.290 (7), 3.66 (6), 5.18 (5), 3.035 (5)

Chemistry:	(1)	(2)
TeO <sub>2</sub>	52.5	59.90
Fe <sub>2</sub> O <sub>3</sub>	27.9	29.96
H <sub>2</sub> O	18.2	10.14
Total	98.6	100.00

(1) Moctezuma mine, Mexico; H<sub>2</sub>O taken as loss on ignition. (2) FeTeO<sub>3</sub>(OH)•H<sub>2</sub>O.

**Occurrence:** A very rare mineral in the oxide zone of a hydrothermal Au–Te ore deposit (Moctezuma mine, Mexico).

**Association:** Emmonsite, anglesite, “limonite”, quartz (Moctezuma mine, Mexico); emmonsite (Mohawk mine, Nevada, USA); rodalquilarite, emmonsite, jarosite, limonite (Tombstone, Arizona, USA).

**Distribution:** From the Moctezuma (Bambolla) mine, 12 km south of Moctezuma, Sonora, Mexico. In the USA, in the Mohawk mine, Goldfield, Esmeralda Co., Nevada; from the Joe shaft, near Tombstone, Cochise Co., Arizona; in the Wilcox district, Catron Co., New Mexico; in Colorado, at the Good Hope mine, Vulcan district, Gunnison Co., and the Hoosier mine, Cripple Creek district, Teller Co.

**Name:** For the state of Sonora, Mexico, in which the mineral was first found.

**Type Material:** The Natural History Museum, London, England, 1967,390; National Museum of Natural History, Washington, D.C., USA, 119271, 164343, 164344.

**References:** (1) Gaines, R.V., G. Donnay, and M.H. Hey (1968) Sonoraite. *Amer. Mineral.*, 53, 1828–1832. (2) Donnay, G., J.M. Stewart, and H. Preston (1970) The crystal structure of sonoraite, Fe<sup>3+</sup>Te<sup>4+</sup>O<sub>3</sub>(OH)•H<sub>2</sub>O. *Tschermaks Mineral. Petrog. Mitt.*, 14, 27–44.