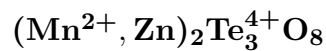


# Spiroffite



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**Crystal Data:** Monoclinic. *Point Group:*  $2/m$ . Anhedral crystals, to 1 cm, commonly cleavable massive.

**Physical Properties:** *Cleavage:* Observed in at least two directions. *Fracture:* Conchoidal. Hardness =  $\sim 3.5$  D(meas.) = 5.01(2) D(calc.) = 5.059

**Optical Properties:** Transparent to translucent. *Color:* Purple, red, pale pink. *Streak:* White. *Luster:* Adamantine. *Optical Class:* Biaxial (+).  $\alpha = 1.85(1)$   $\beta = 1.91(1)$   $\gamma = [2.20]$   $2V(\text{meas.}) = 55(5)^\circ$

**Cell Data:** *Space Group:*  $C2/c$ .  $a = 12.870(2)$   $b = 5.3813(5)$   $c = 11.888(2)$   
 $\beta = 98.22(1)^\circ$   $Z = 4$

**X-ray Powder Pattern:** Moctezuma mine, Mexico.  
4.98 (vs), 3.00 (vs), 4.06 (s), 3.31 (s), 2.77 (w), 2.69 (w), 2.60 (w)

## Chemistry:

	(1)
TeO <sub>2</sub>	76.29
MnO	14.20
ZnO	9.36
CaO	0.15
Total	[100.00]

(1) Moctezuma mine, Mexico; recalculated to 100% from an original total of 100.06% after deduction of H<sub>2</sub>O 0.03%, insoluble 0.22%, remnant = Bi<sub>2</sub>O<sub>3</sub> 0.08%, Sb<sub>2</sub>O<sub>3</sub> 0.02%, Al<sub>2</sub>O<sub>3</sub> 0.02%, PbO 0.05%, CdO 0.07%, CoO 0.02%, MgO 0.02%; corresponds to (Mn<sub>1.26</sub>Zn<sub>0.72</sub>Ca<sub>0.02</sub>)<sub>Σ=2.00</sub>Te<sub>3.01</sub>O<sub>8.02</sub>.

**Occurrence:** Very rare in the oxidized zone of an Au–Te deposit (Moctezuma mine, Mexico); very rare in intensely silicified pyritic shales (Joe mine, Arizona, USA).

**Association:** Tellurium, tellurite, paratellurite, denningite, mroseite, zemannite (Moctezuma mine, Mexico).

**Distribution:** From the Moctezuma (Bambolla) mine, 12 km south of Moctezuma, Sonora, Mexico. Large crystals at the Joe mine, Tombstone, Cochise Co., Arizona, USA. From the Kawazu mine, Shizuoka Prefecture, Japan.

**Name:** To honor Professor Kiril Spiroff (1901–1981), Bulgarian–American mineralogist, Michigan College of Mining and Technology, Houghton, Michigan, USA.

**Type Material:** Natural History Museum, Paris, France, 175.79; Royal Ontario Museum, Toronto, Canada, M24879; Harvard University, Cambridge, Massachusetts, USA, 108109.

**References:** (1) Mandarino, J.A., S.J. Williams, and R.S. Mitchell (1963) Spiroffite, a new tellurite mineral from Moctezuma, Sonora, Mexico. Mineral. Soc. Amer. Special Paper 1, 305–309. (2) Cooper, M.A. and F.C. Hawthorne (1996) The crystal structure of spiroffite. Can. Mineral., 34, 821–826.