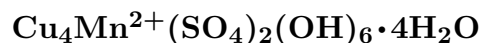


# Campigliaite



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**Crystal Data:** Monoclinic. *Point Group:* 2. In tufts of crystals, elongated along [010], bladed on {100}, to 0.2 mm. *Twinning:* Polysynthetic, with {100} as twin plane, ubiquitous.

**Physical Properties:** *Cleavage:* On {100}, perfect. Hardness = n.d.  $D(\text{meas.}) = 3.0$   
 $D(\text{calc.}) = 3.063$

**Optical Properties:** Transparent. *Color:* Pale blue; pale greenish blue in transmitted light.  
*Luster:* Vitreous.

*Optical Class:* Biaxial (-). *Orientation:*  $X \simeq a$ ;  $Y \simeq c$ ;  $Z = b$ . *Dispersion:*  $r < v$ , weak.  
 $\alpha = 1.589$   $\beta = 1.645$   $\gamma = 1.659$   $2V(\text{meas.}) = 52^\circ$

**Cell Data:** *Space Group:*  $C2$ .  $a = 21.725(8)$   $b = 6.118(6)$   $c = 11.233(7)$   $\beta = 100.40(5)^\circ$   
 $Z = 4$

**X-ray Powder Pattern:** Temperino mine, Italy.  
10.68 (100), 5.34 (60), 3.56 (44), 2.673 (5), 2.768 (2), 2.570 (2), 1.781 (2)

## Chemistry:

	(1)	(2)
SO <sub>3</sub>	20.15	23.71
MnO	9.95	10.50
CuO	40.60	47.11
ZnO	4.47	
H <sub>2</sub> O	[24.83]	18.68
Total	[100.00]	100.00

(1) Temperino mine, Italy; by electron microprobe, average of three analyses, total Mn as MnO, H<sub>2</sub>O by difference; corresponds to  $(\text{Cu}_{3.62}\text{Zn}_{0.39})_{\Sigma=4.01}\text{Mn}_{0.99}(\text{SO}_4)_{1.78}(\text{OH})_{6.44} \cdot 6.55\text{H}_2\text{O}$ .

(2)  $\text{Cu}_4\text{Mn}(\text{SO}_4)_2(\text{OH})_6 \cdot 4\text{H}_2\text{O}$ .

**Occurrence:** A rare secondary mineral in the oxidized zone of a metallic sulfide skarn deposit.

**Association:** Gypsum, brochantite, antlerite.

**Distribution:** From the Temperino mine, Campiglia Marittima, Tuscany, Italy.

**Name:** For the locality which provided the first specimens, Campiglia Marittima, Italy.

**Type Material:** Mineralogical Museum, University of Florence, Florence, 214/I; National Museum of Natural History, Washington, D.C., USA, 148483–148485.

**References:** (1) Menchetti, S. and C. Sabelli (1982) Campigliaite,  $\text{Cu}_4\text{Mn}(\text{SO}_4)_2(\text{OH})_6 \cdot 4\text{H}_2\text{O}$ , a new mineral from Campiglia Marittima, Tuscany, Italy. *Amer. Mineral.*, 67, 385–393.