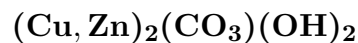


**Rosasite**

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**Crystal Data:** Monoclinic. *Point Group:*  $2/m$ . Crystals are acicular, to 0.5 mm; in radial or divergent sprays or globular; compact mammillary to botryoidal crusts and masses, typically fibrous and with warty surfaces. *Twining:* On {100}.

**Physical Properties:** *Cleavage:* In two directions. *Tenacity:* Brittle. Hardness = 4.5  
D(meas.) = 4.0–4.2 D(calc.) = 4.15

**Optical Properties:** Semitransparent. *Color:* Green, bluish green, sky-blue; pale blue to colorless in transmitted light.

*Optical Class:* Biaxial (-). *Pleochroism:* Strong;  $X$  = pale emerald-green;  $Z$  = dark emerald-green. *Orientation:*  $X = c$ ;  $Y \wedge a \simeq 10^\circ$ . *Absorption:*  $X > Y > Z$ .  $\alpha = 1.672\text{--}1.688$   
 $\beta = 1.796\text{--}1.83$   $\gamma = 1.811\text{--}1.831$   $2V(\text{meas.}) = 33(5)^\circ$   $2V(\text{calc.}) = 36.4^\circ$

**Cell Data:** *Space Group:*  $P2_1/a$ .  $a = 12.873(3)$   $b = 9.354(3)$   $c = 3.156(2)$   
 $\beta = 110.36(3)^\circ$   $Z = 4$

**X-ray Powder Pattern:** Tsumeb, Namibia.

2.600 (100), 6.05 (90), 5.07 (90), 3.69 (90), 2.962 (70), 2.534 (50), 2.144 (50)

**Chemistry:**

	(1)	(2)
CO <sub>2</sub>	19.54	19.74
CuO	47.53	35.68
ZnO	24.60	36.50
H <sub>2</sub> O	8.33	8.08
Total	[100.00]	100.00

(1) Sardinia; recalculated to 100% from an original total of 100.37% after deduction of MgO 0.15%, Fe<sub>2</sub>O<sub>3</sub> 0.39%, insoluble 0.33%. (2) (Cu, Zn)<sub>2</sub>(CO<sub>3</sub>)(OH)<sub>2</sub> with Cu:Zn = 1:1.

**Mineral Group:** Rosasite group.

**Occurrence:** An uncommon secondary mineral in the oxidized zone of Cu–Zn-bearing deposits, typically formed by zinc-bearing solutions on primary copper minerals; may be of post-mine origin.

**Association:** Malachite, aurichalcite, smithsonite, cerussite, hydrozincite, hemimorphite.

**Distribution:** From the Rosas mine, Sulcis, Sardinia, Italy. At a number of places in England, as Caldbeck Fells, Cumbria, and mines in Cornwall. Fine examples from Tsumeb, Namibia. In the USA, from the Kelly mine, Magdalena, Socorro Co., New Mexico; fine specimens from the Silver Bill mine, Gleeson, and at Bisbee, Cochise Co., in the 79 mine, Gila Co., and a number of other places in Arizona; from the Mohawk mine, San Bernardino Co., California; at Leadville, Lake Co., Colorado; from Majuba Hill, Pershing Co., Nevada; in the Hidden Treasure mine, Ophir district, Tooele Co., Utah. Abundant specimens from the Ojuela mine, Mapimí, Durango, Mexico. In small amounts from additional localities.

**Name:** For its occurrence in the Rosas mine, Sardinia, Italy.

**Type Material:** Natural History Museum, Paris, France, 109.327, 109.328, 139.61.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 251–252. (2) Roberts, A.C., J.L. Jambor, and J.D. Grice (1986) The X-ray crystallography of rosasite from Tsumeb, Namibia. Powder Diffraction, 1, 56–57.