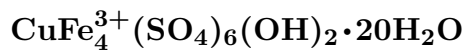


# Cuprocopiapite



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**Crystal Data:** Triclinic. *Point Group:*  $\bar{1}$ . In fine-grained lumpy aggregates of minute crystals.

**Physical Properties:** *Cleavage:* [010, perfect;  $\bar{1}01$  imperfect.] (by analogy with copiapite).  
Hardness = 2.5 D(meas.) = 2.23 D(calc.) = [2.26] Soluble in  $\text{H}_2\text{O}$ .

**Optical Properties:** Semitransparent. *Color:* Greenish yellow, yellow-orange.  
*Optical Class:* Biaxial (+). *Pleochroism:* In shades of green. *Orientation:*  $X \simeq b$ .  
*Dispersion:*  $r > v$ , strong. *Absorption:*  $X = Y > Z$ .  $\alpha = 1.558$   $\beta = 1.575$   $\gamma = 1.620$   
 $2V(\text{meas.}) = 63^\circ$

**Cell Data:** *Space Group:*  $P\bar{1}$  (ICDD 19-394).  $a = 7.34$   $b = 18.19$   $c = 7.28$   $\alpha = 93^\circ 51'$   
 $\beta = 101^\circ 30'$   $\gamma = 99^\circ 23'$   $Z = 1$

**X-ray Powder Pattern:** Quetena, Chile. (ICDD 19-394).  
3.56 (100), 8.81 (80), 5.82 (50), 6.32 (40), 3.08 (40), 3.90 (30), 3.76 (30)

Chemistry:	(1)	(2)
$\text{SO}_3$	41.62	38.20
$\text{Al}_2\text{O}_3$	1.47	
$\text{Fe}_2\text{O}_3$	27.66	25.40
CuO	5.72	6.32
$\text{H}_2\text{O}$	23.51	30.08
insol.	0.21	
Total	100.19	100.00

(1) Chuquicamata, Chile. (2)  $\text{CuFe}_4(\text{SO}_4)_6(\text{OH})_2 \cdot 20\text{H}_2\text{O}$ .

**Mineral Group:** Copiapite group.

**Occurrence:** A rare secondary mineral probably formed by reaction between copiapite and copper sulfate-bearing solutions, preserved in arid climates.

**Association:** Copiapite, parabutlerite, chalcantinite, jarosite.

**Distribution:** In Chile, from Chuquicamata and at Quetena, west of Calama, Antofagasta.

**Name:** As the *cuprian* member of the *copiapite* group.

**Type Material:** Harvard University, Cambridge, Massachusetts, USA, 99048, 99060.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 623-627. (2) Bandy, M.C. (1938) Mineralogy of three sulphate deposits of northern Chile. Amer. Mineral., 23, 669-760, esp. 737-739.