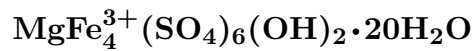


# Magnesiocopiapite



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**Crystal Data:** Triclinic. *Point Group:*  $\bar{1}$ . As scaly crystals, to several mm, commonly as efflorescences.

**Physical Properties:** *Cleavage:* [On {010}, perfect.] (by analogy to copiapite group members). Hardness = [2–3] D(meas.) = n.d. D(calc.) = 2.16

**Optical Properties:** Semitransparent. *Color:* Lemon-yellow, orange, greenish yellow. *Optical Class:* Biaxial (+). *Pleochroism:* Y = colorless; Z = greenish yellow.  $\alpha = 1.507\text{--}1.510$   $\beta = 1.529\text{--}1.535$   $\gamma = 1.575\text{--}1.585$  2V(meas.) = Moderate. 2V(calc.) = 67°

**Cell Data:** *Space Group:*  $P\bar{1}$ .  $a = 7.335\text{--}7.35$   $b = 18.782\text{--}18.84$   $c = 7.377\text{--}7.39$   $\alpha = 91.23^\circ\text{--}91.7^\circ$   $\beta = 102.17^\circ\text{--}102.6^\circ$   $\gamma = 98.79^\circ\text{--}99.0^\circ$  Z = 1

**X-ray Powder Pattern:** Knoxville, California, USA.  
9.29 (100), 18.57 (90), 5.600 (80), 3.588 (50), 6.192 (45), 4.208 (40), 3.506 (40)

Chemistry:	(1)	(2)	(3)
SO <sub>3</sub>	39.47	39.90	39.43
Al <sub>2</sub> O <sub>3</sub>		3.17	
Fe <sub>2</sub> O <sub>3</sub>	27.44	23.58	26.21
FeO	0.52	0.17	
CoO		0.16	
CuO		0.15	
MgO	3.26	1.97	3.31
H <sub>2</sub> O	27.84	30.90	31.05
insol.	1.16		
Total	99.69	[100.00]	100.00

(1) Near Blythe, California, USA. (2) Forty Mile River, Alaska, USA; recalculated to 100% from an original total of 99.68% after deduction of remnant 1.40%; corresponds to  $(\text{Mg}_{0.59}\text{Al}_{0.30}\text{Fe}_{0.03}^{2+}\text{Co}_{0.03}\text{Cu}_{0.02})_{\Sigma=0.97}(\text{Fe}_{3.56}^{3+}\text{Al}_{0.44})_{\Sigma=4.00}(\text{SO}_4)_6(\text{OH})_2 \cdot 19.7\text{H}_2\text{O}$ . (3)  $\text{MgFe}_4(\text{SO}_4)_6(\text{OH})_2 \cdot 20\text{H}_2\text{O}$ .

**Mineral Group:** Copiapite group.

**Occurrence:** An uncommon secondary mineral, typically formed by oxidation of pyrite.

**Association:** Pyrite, römerite, paracoquimbite, halotrichite, redingtonite.

**Distribution:** In the USA, from near Blythe, Riverside Co., and at the Redington mercury mine, Knoxville, Napa Co., California; from near Las Vegas, Tecolote district, San Miguel Co., New Mexico; at the Denver mine, Santa Cruz Co., and the United Verde mine, Jerome, Yavapai Co., Arizona; in Alaska, in a prospect pit along the Mosquito Fork, Forty Mile River, Eagle A-3 quadrangle. From the Prince mine, Cape Breton Island, Nova Scotia, Canada. At Falun, Kopparberg, Sweden. From the Ossling Berg, Lausitz, North Saxony, Germany.

**Name:** For its *magnesium* content and relation to *copiapite*.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, 103543, 80696.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 623–627. (2) Bayliss, P. (1985) X-ray powder diffraction data and cell parameters for copiapite-group minerals. *Can. Mineral.*, 23, 53–56. (3) Jolly, J.H. and H.L. Foster (1967) X-ray diffraction data of aluminocopiapite [= magnesiocopiapite]. *Amer. Mineral.*, 52, 1220–1223. (4) Süsse, P. (1972) Crystal structure and hydrogen bonding of copiapite. *Zeits. Krist.*, 135, 34–55.

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