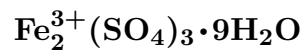


Coquimbite



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Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$. As short prismatic to pyramidal crystals, dominated by $\{10\bar{1}0\}$, $\{11\bar{2}0\}$, $\{10\bar{1}1\}$, $\{0001\}$, to 2 cm; massive, granular.

Physical Properties: *Cleavage:* Imperfect on $\{10\bar{1}1\}$; difficult on $\{10\bar{1}0\}$. Hardness = 2.5 D(meas.) = 2.11(1) D(calc.) = [2.12] Soluble in H_2O , astringent taste; effloresces in dry air.

Optical Properties: Transparent. *Color:* Pale violet to amethystine, rarely pale yellow or pale green. *Luster:* Vitreous.

Optical Class: Uniaxial (+). $\omega = 1.536\text{--}1.539$ $\epsilon = 1.548\text{--}1.572$

Cell Data: *Space Group:* $P\bar{3}1c$. $a = 10.922(9)$ $c = 17.084(14)$ $Z = 4$

X-ray Powder Pattern: Smolník, Slovakia. (ICDD 6–40).

8.26 (100), 2.759 (75), 5.45 (65), 3.36 (60), 4.60 (45), 9.44 (40), 3.64 (40)

Chemistry:	(1)	(2)	(1)	(2)
SO_3	42.37	42.74	H_2O	28.48
Al_2O_3	trace		Total	99.79
Fe_2O_3	28.94	28.41		100.00

(1) Tierra Amarilla, Chile. (2) $\text{Fe}_2(\text{SO}_4)_3 \cdot 9\text{H}_2\text{O}$.

Polymorphism & Series: Dimorphous with paracoquimbite.

Occurrence: Typically a secondary mineral in the oxidized portions of weathering iron sulfide deposits in arid regions; rarely associated with fumarolic activity.

Association: Copiapite, paracoquimbite, voltaite, szomolnokite, römerite.

Distribution: Abundant at numerous localities in Chile: from Tierra Amarilla, southeast of Copiapó, Atacama; at Quetena, west of Calama, from Chuquicamata, and at Alcaparrosa, near Cerritos Bayos, southwest of Calama, Antofagasta. In the USA, in Arizona, at Bisbee, Cochise Co., and from the United Verde mine, Jerome, Yavapai Co.; near Borate, San Bernardino Co., California; fine examples from the Dexter No. 7 mine, Calf Mesa, San Rafael district, Emery Co., Utah. Large crystals from Zalamea la Real, Huelva Province, Spain. From Smolník (Szomolnok), 16 km northeast of Rožňava, Slovakia. In Alum Cave, Vulcano, Lipari Islands, Italy. At volcanoes on the Kamchatka Peninsula, Russia.

Name: For the Coquimbo region, Chile.

Type Material: Mining Academy, Freiberg, Germany, 18558.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 532–534. (2) Fang, J.H. and P.D. Robinson (1970) Crystal structures and mineral chemistry of hydrated ferric sulfates. I. The crystal structure of coquimbite. Amer. Mineral., 55, 1534–1540. (3) Fang, J.H. and P.D. Robinson (1974) Polytypism in coquimbite and paracoquimbite. Neues Jahrb. Mineral., Monatsh., 89–91.