

Ransomite



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Crystal Data: Monoclinic, pseudo-orthorhombic. *Point Group:* $2/m$. Needlelike crystals, to 2 mm, in radiating tufts and crusts.

Physical Properties: *Cleavage:* On {001}, perfect. Hardness = 2.5 $D(\text{meas.}) = 2.632$
 $D(\text{calc.}) = 2.735$ Soluble in H_2O .

Optical Properties: Transparent. *Color:* Bright sky-blue; pale blue in transmitted light.
Luster: Vitreous, pearly on cleavages.
Optical Class: Biaxial (+). $\alpha = 1.631(5)$ $\beta = 1.643(5)$ $\gamma = 1.695(5)$ $2V(\text{meas.}) = \text{n.d.}$

Cell Data: *Space Group:* $P2_1/c$. $a = 4.811(2)$ $b = 16.217(4)$ $c = 10.403(2)$
 $\beta = 93^\circ 01(02)'$ $Z = 2$

X-ray Powder Pattern: n.d.

Chemistry:	(1)	(2)
SO_3	46.30	47.97
Al_2O_3	1.52	
Fe_2O_3	22.57	23.92
CuO	11.29	11.92
H_2O	18.82	16.19
Total	100.50	100.00

(1) United Verde mine, Arizona, USA. (2) $\text{CuFe}_2(\text{SO}_4)_4 \cdot 6\text{H}_2\text{O}$.

Occurrence: Very rare, formed as the result of a mine fire (United Verde mine, Arizona, USA); coating oxidizing copper-bearing pyrite (Campbell shaft, Arizona, USA).

Association: Pyrite, voltaite, römerite (Campbell shaft, Arizona, USA).

Distribution: In the USA, in Arizona, from the United Verde mine, Jerome, Yavapai Co., and in the Campbell shaft, Bisbee, Cochise Co.

Name: To honor Frederick Leslie Ransome (1868–1935), American mining geologist, U.S. Geological Survey and California Institute of Technology, Pasadena, California, USA.

Type Material: The Natural History Museum, London, England, 1985,401; Mineral Museum, University of Arizona, M50; Harvard University, Cambridge, Massachusetts, 90541; National Museum of Natural History, Washington, D.C., USA, 95955.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 519–520. (2) Wood, M.M. (1970) The crystal structure of ransomite. *Amer. Mineral.*, 55, 729–734.