

Römerite



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Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Crystals are pseudocubic or thick tabular {010}, large {010}, {001}, with a well-developed [001] zone, many other forms, to 3 mm; in crystal aggregates, stalactitic, granular.

Physical Properties: *Cleavage:* On {010}, perfect; {001}, less perfect. *Fracture:* Uneven. Hardness = 3–3.5 D(meas.) = 2.174 D(calc.) = 2.173 Soluble in H₂O, taste saline, astringent.

Optical Properties: Translucent. *Color:* Rust-brown, clove-brown, honey-brown, yellow, may be violet-brown; yellow-brown in transmitted light. *Luster:* Oily, resinous, vitreous. *Optical Class:* Biaxial (–). *Pleochroism:* X = reddish yellow; Y = pale yellow; Z = yellow-brown. *Dispersion:* $r > v$, very strong, may be crossed. $\alpha = 1.519\text{--}1.524$ $\beta = 1.570\text{--}1.571$ $\gamma = 1.580\text{--}1.583$ 2V(meas.) = n.d.

Cell Data: *Space Group:* $P\bar{1}$. $a = 6.463(8)$ $b = 15.309(18)$ $c = 6.341(8)$ $\alpha = 90^\circ 32'(10)'$ $\beta = 101^\circ 05'(10)'$ $\gamma = 85^\circ 44'(10)'$ $Z = 1$

X-ray Powder Pattern: Island Mountain mine, California, USA.
4.79 (10), 4.03 (9), 5.05 (5), 2.38 (3), 3.16 (2), 2.62 (2), 1.907 (2)

Chemistry:

	(1)	(2)
SO ₃	39.79	39.83
Fe ₂ O ₃	20.11	19.86
FeO	8.71	8.94
H ₂ O	30.99	31.37
insol.	0.16	
Total	99.76	100.00

(1) Tierra Amarilla, Chile; corresponds to $\text{Fe}_{0.97}^{2+}\text{Fe}_{2.02}^{3+}(\text{SO}_4)_{3.98} \cdot 13.81\text{H}_2\text{O}$.

(2) $\text{Fe}^{2+}\text{Fe}_2^{3+}(\text{SO}_4)_4 \cdot 14\text{H}_2\text{O}$.

Occurrence: As an early alteration product of oxidizing pyrite or pyrrhotite; uncommonly a volcanic sublimate.

Association: Copiapite, melanterite, voltaite, halotrichite, szomolnokite, kornelite, rozenite, siderotil, alunite.

Distribution: In Germany, from the Rammelsberg mine, near Goslar, Harz Mountains; at Pfaffenreuth, near Waldsassen, Bavaria. At the Tmavýdůl coal mine, near Rytyně, and from Příbram, Czech Republic. In the Kamariza mine, Laurium, Greece. At Nagybörzsöny and Lesenceistvánd, Hungary. In Russia, in the Blyava sulfate deposits, Southern Ural Mountains, and on volcanoes on the Kamchatka Peninsula. From Madeni Zakh, Iran. In Chile, at Tierra Amarilla, southeast of Copiapó, Atacama; from Quetena, west of Calama, Alcaparrosa, near Cerritos Bayos, southwest of Calama, and Chuquicamata, Antofagasta. In the USA, at the United Verde mine, Jerome, Yavapai Co., and the Copper Queen mine, Bisbee, Cochise Co., Arizona; at the Island Mountain mine, Trinity Co., and the Leviathan mine, Alpine Co., California; in the Dexter mine group, Calf Mesa, San Rafael district, Emery Co., Utah. From Mt. Isa, Queensland, Australia. At Navarana Fjord, northeastern Freuchen Land, Greenland. Some additional minor localities are known.

Name: Honors Friedrich Adolph Römer (1809–1869), German geologist, Director of the School of Mines, Clausthal, Germany.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 520–522 [roemerite = römerite]. (2) Van Loan, P.R. and E.W. Nuffield (1959) An X-ray study of roemerite. Can. Mineral., 6, 348–356. (3) Fanfani, L., A. Nunzi, and P.F. Zanazzi (1970) The crystal structure of roemerite. Amer. Mineral., 55, 78–89.

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