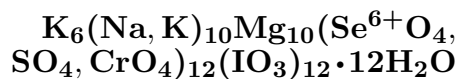


Carlosruizite



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Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$. As thin pseudorhombohedral platy {0001} crystals with hexagonal outline, modified by {10 $\bar{1}$ 2}, to < 200 μm .

Physical Properties: *Cleavage:* On {11 $\bar{2}$ 0}, likely, visible on SEM images. *Tenacity:* Brittle. Hardness = 2–3 D(meas.) = n.d. D(calc.) = 3.400 Slowly soluble in H₂O.

Optical Properties: Transparent. *Color:* Colorless to pale yellow. *Luster:* Vitreous. *Optical Class:* Uniaxial (–). $\omega = 1.655(3)$ $\epsilon = 1.642(1)$

Cell Data: *Space Group:* $P\bar{3}c1$. $a = 9.5901(8)$ $c = 27.56(2)$ $Z = 1$

X-ray Powder Pattern: Zapiga, Chile.

3.561 (100), 3.058 (39), 2.717 (39), 3.082 (32), 13.75 (30), 7.10 (20), 3.974 (16)

Chemistry:

	(1)
SO ₃	7.9
SeO ₃	19.0
CrO ₃	2.5
I ₂ O ₅	45.6
MgO	9.2
Na ₂ O	4.7
K ₂ O	6.7
H ₂ O	n.d.
Total	95.6

(1) Zapiga, Chile; by electron microprobe, average of ten analyses, amounts thought low due to decay in electron beam, H₂O confirmed by crystal-structure analysis; corresponds to K_{6.2}Na_{6.7}Mg_{10.0}[(Se⁶⁺O₄)_{6.6}(SO₄)_{4.3}(CrO₄)_{1.1}]_{Σ=12.0}(IO₃)_{12.0}•12H₂O.

Polymorphism & Series: Forms a series with fuenzalidaite.

Occurrence: A rare constituent of nitrate ores.

Association: Iquiqueite, nitratine, halite, darapskite, and residues containing dietzeite, brüggenite, tarapacaite, lopezite, ulexite, probertite, and gypsum after leaching in water.

Distribution: Probably from near Zapiga, Tarapacá, Chile.

Name: Honors Carlos Ruiz F. (1916–), first Director of the Chilean Geological Survey.

Type Material: n.d.

References: (1) Konnert, J.A., H.T. Evans, Jr., J.J. McGee, and G.E. Ericksen (1994) Mineralogical studies of the nitrate deposits of Chile: VII. Two new saline minerals with the composition K₆(Na, K)₄Na₆Mg₁₀(XO₄)₁₂(IO₃)₁₂•12H₂O: fuenzalidaite (X = S) and carlosruizite (X = Se). *Amer. Mineral.*, 79, 1003–1008.