Uranoclite $(UO_2)_2(OH)_2Cl_2(H_2O)_4$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As irregular crystals to ~0.05 mm in tightly intergrown aggregates.

Physical Properties: *Cleavage*: Multiple likely but undetermined. *Tenacity*: Brittle. *Fracture*: Irregular. Hardness = ~1.5 D(meas.) = n.d. D(calc.) = 4.038 Bright green-white fluorescence under 405 nm UV. Soluble in H_2O.

Optical Properties: Translucent. *Color*: Yellow. *Streak*: Very pale yellow. *Luster*: Vitreous. *Optical Class*: *n*(calc.) = 1.660

Cell Data: *Space Group: P*$2_1/n$. $a = 10.763(8)$ $b = 6.156(8)$ $c = 17.798(8)$ $\beta = 95.656(15)°$ Z = 4

X-Ray Diffraction Pattern: Blue Lizard mine, Red Canyon, San Juan County, Utah, USA. 5.340 (100), 4.421 (83), 5.051 (63), 3.586 (57), 8.85 (38), 3.781 (38), 2.005 (37)

Chemistry:

	(1)	(2)
UO_3	79.58	79.78
Cl	8.95	9.89
H_2O	[12.77]	12.56
-O = Cl	2.02	2.23
Total	99.28	100.00

(1) Blue Lizard mine, Red Canyon, San Juan County, Utah, USA; average electron microprobe analysis supplemented by Raman spectroscopy, H_2O from stoichiometry; corresponding to $(UO_2)_2(OH)_{2.19}Cl_{1.81}(H_2O)_4$. (2) $(UO_2)_2(OH)_2Cl_2(H_2O)_4$.

Occurrence: In efflorescent crusts on mine walls by postmining oxidation of asphaltum-rich sandstone beds laced with uraninite and sulfides in a damp underground environment.

Association: Gypsum, quartz.

Distribution: From the Blue Lizard mine, Red Canyon, White Canyon District, San Juan County, Utah, USA.

Name: For its composition as the first uranyl chloride mineral with no other anions other than hydroxyl.

Type Material: Natural History Museum of Los Angeles County, Los Angeles, California, USA (75101 and 75102).

References: (1) Kampf, A.R., J. Plášil, T.A. Olds, B.P. Nash, and J. Marty (2021) Uranoclite, a new uranyl chloride mineral from the Blue Lizard mine, San Juan County, Utah, USA. Mineral. Mag., 85, 438-443. (2) (2022) Amer. Mineral., 107, 318 (abs. ref. 1).