

Crystal Data: Triclinic. *Point group:* $\bar{1}$. As bladed crystals, to 0.3 mm, flattened on {001} and elongated along [100], that exhibit {010}, {001}, $\{\bar{1}00\}$, $\{0\bar{1}0\}$, $\{00\bar{1}\}$, $\{\bar{1}10\}$, $\{\bar{1}\bar{1}0\}$, $\{\bar{1}20\}$, and $\{2\bar{1}0\}$. *Twinning:* By reflection on {001}, probable.

Physical Properties: *Cleavage:* Perfect on {100}, good on $\{2\bar{1}0\}$. *Tenacity:* Brittle. *Fracture:* Irregular. Hardness = ~2 D(meas.) = n.d. D(calc.) = 3.469-3.507 Fluoresces greenish under 405 nm laser light. Easily soluble in water.

Optical Properties: Transparent. *Color:* Light green-yellow. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (+). $\alpha = 1.559(1)$ $\beta = 1.582(1)$ $\gamma = 1.608(1)$ $2V(\text{meas.}) = 88(1)^\circ$ $2V(\text{calc.}) = 87.8^\circ$ *Dispersion:* $r < v$; moderate. *Orientation:* $X \approx c$, $Y \approx a$, $Z \approx b^*$. *Pleochroism:* Weak, $X =$ very pale yellow-green, $Y =$ pale yellow-green, $Z =$ light yellow-green. *Absorption:* $X < Y < Z$.

Cell Data: *Space Group:* $P\bar{1}$. $a = 6.83617(17)$ $b = 9.5127(3)$ $c = 13.8979(10)$ $\alpha = 98.636(7)^\circ$ $\beta = 93.713(7)^\circ$ $\gamma = 110.102(8)^\circ$ $Z = 2$

X-ray Powder Pattern: Green Lizard mine, Red Canyon, San Juan County, Utah, USA. 6.80 (100), 5.75 (62), 3.126 (60), 3.404 (56), 6.06 (36), 2.988 (34), 4.41 (32)

Chemistry:	(1)	(2)
(NH ₄) ₂ O	2.75	2.96
Na ₂ O	2.34	3.52
SO ₃	17.70	18.21
UO ₃	60.45	65.07
H ₂ O	[9.76]	10.24
Total	93.00	100.00

(1) Green Lizard mine, Red Canyon, San Juan County, Utah, USA; average of 6 electron microprobe analyses, supplemented by Raman spectroscopy, H₂O calculated from structure, low analytical total ascribed to Na lower than expected from stoichiometry; corresponds to (NH₄)_{0.98}Na_{1.00}U_{1.96}S_{2.04}O_{18.00}H_{10.02}. (2) (NH₄)Na(UO₂)₂(SO₄)₂(OH)₂·4H₂O.

Occurrence: A secondary mineral on the walls of mines in U-V deposits that replaced wood and other organic material in sandstones and conglomerate (roll-front type U-V deposits).

Association: Ammoniozippeite, boussingaultite, dickite, beshtauite, calcite, gypsum, ferriite, johannite, natrozippeite, oppenheimerite, plášilite, rozenite, shumwayite, sulfur, wetherillite.

Distribution: From the Green Lizard mine, Red Canyon, White Canyon mining district, San Juan County, Utah, USA.

Name: For the *Green Lizard* mine, the locality that provided the first specimens.

Type Material: Natural History Museum of Los Angeles County, Los Angeles, California, USA (66558 and 66559).

References: (1) Kampf, A.R., J. Plášil, B.P. Nash, and J. Marty (2018) Greenlizardite, (NH₄)Na(UO₂)₂(SO₄)₂(OH)₂·4H₂O, a new mineral with phosphuranylite-type uranyl sulfate sheets from Red Canyon, San Juan County, Utah, USA. *Mineral. Mag.*, 82(2), 401-411. (2) (2018) *Amer. Mineral.*, 103, 2041 (abs. ref. 1).