

Klaprothite**Na₆(UO₂)(SO₄)₄(H₂O)₄**

Crystal Data: Monoclinic. *Point Group:* 2/m. As equant to blocky prismatic crystals, to ~ 1 mm, with skeletal or rounded edges and in parallel intergrowths. Crystals are elongated along [010] and display {100}, {001}, {110}, {011}, and {012}.

Physical Properties: *Cleavage:* Perfect on {100} and {001}. *Tenacity:* Brittle, slightly sectile. *Fracture:* Irregular. Hardness = ~ 2.5 D(meas.) = 2.90(2) D(calc.) = 2.923 Bright bluish green fluorescence under SW & LW UV. Easily soluble in water; slightly deliquescent.

Optical Properties: Transparent. *Color:* Yellowish green to greenish yellow.

Streak: Pale yellow-green. *Luster:* Vitreous.

Optical Class: Biaxial (-). $\alpha = 1.497$ $\beta = 1.517$ $\gamma = 1.519$ $2V(\text{meas.}) = 34(1)^\circ$

$2V(\text{calc.}) = 34.7^\circ$ *Pleochroism:* X = colorless, Y = light yellowish green, Z = light yellowish green.

Absorption: X < Y ≈ Z. *Orientation:* Y = b, X^c = 10° in obtuse β. *Dispersion:* r > v, distinct.

Cell Data: *Space Group:* P2₁/c. a = 9.8271(4) b = 9.7452(3) c = 20.8725(15) β = 98.743(7)° Z = 4

X-ray Powder Pattern: Blue Lizard mine, Red Canyon, San Juan County, Utah, USA. 3.434 (100), 7.09 (97), 5.158 (77), 9.72 (68), 3.082 (65), 3.012 (61), 4.330 (58)

Chemistry:	(1)	(2)
Na ₂ O	21.06	21.51
UO ₃	33.14	33.10
SO ₃	35.93	37.05
H ₂ O	[8.15]	8.34
Total	98.28	100.00

(1) Blue Lizard mine, Red Canyon, San Juan County, Utah, USA; average of 11 electron microprobe analyses supplemented by Raman spectroscopy, H₂O calculated from stoichiometry; corresponds to Na_{6.01}(U_{1.03}O₂)(S_{0.99}O₄)₄(H₂O)₄. (2) Na₆(UO₂)(SO₄)₄(H₂O).

Occurrence: As efflorescent crusts on mine walls, formed by hydration-oxidation weathering of primary uranium minerals (mainly uraninite) by acidic solutions from the decomposition of sulfides.

Association: Blödite, blu lizardite, bobcookite, epsomite, gypsum, hexahydrite, konyaite, plášilite, tamarugite.

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

Name: Honors German chemist Martin Heinrich Klaproth (1743-1817), the discoverer of uranium (1789), zirconium (1789) and cerium (1803).

Type Material: Natural History Museum of Los Angeles County, Los Angeles, California, USA (65610- 65613); A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (4778/1).

References: (1) Kampf, A.R., J. Plášil, A.V. Kasatkin, J. Marty, and J. Čejka (2017) Klaprothite, péligotite and ottohahnite, three new minerals with bidentate UO₇-SO₄ linkages from the Blue Lizard mine, San Juan County, Utah, USA. *Mineral. Mag.*, 81(4), 753-779. (2) (2017) *Amer. Mineral.*, 102, 2343-2344 (abs. ref. 1).