

**Crystal Data:** Monoclinic. *Point Group:* 2/m. *Twining:* By 180° rotation on [11̄ 0] with {111̄} composition plane (indicated by single-crystal X-ray diffraction). As bladed crystals flattened on {001} to ~0.2 mm in irregular aggregates to ~0.5 mm.

**Physical Properties:** *Cleavage:* Perfect on {001}. *Tenacity:* Brittle. *Fracture:* Irregular. Hardness = ~2 D(meas.) = n.d. D(calc.) = 2.463 Non-fluorescent. Easily soluble in room-temperature H<sub>2</sub>O and dehydrates readily even at moderate relative humidity.

**Optical Properties:** Transparent to translucent. *Color:* Pale green-yellow. *Streak:* White. *Luster:* Vitreous.

*Optical Class:* Biaxial.  $\alpha' = 1.513$   $\gamma' = 1.522$  (by analogy to leydetite)  $n(\text{calc.}) = 1.512$

**Cell Data:** *Space Group:* C2/c.  $a = 11.3513(3)$   $b = 7.7310(2)$   $c = 21.7957(15)$   $\beta = 102.387(7)^\circ$   $Z = 4$

**X-Ray Diffraction Pattern:** Markey mine, Red Canyon, San Juan County, Utah, USA. 10.66 (100), 6.31 (78), 5.06 (61), 3.390 (59), 3.193 (50), 5.32 (49), 5.85 (38)

Chemistry:	(1)	(2)
MgO	3.24	5.89
MnO	0.06	
FeO	2.69	
ZnO	1.33	
SO <sub>3</sub>	23.32	23.39
UO <sub>3</sub>	40.69	41.78
H <sub>2</sub> O	[28.80]	28.95
Total	100.13	100.00

(1) Markey mine, Red Canyon, San Juan County, Utah, USA; average electron microprobe analysis supplemented by Raman spectroscopy, H<sub>2</sub>O calculated; corresponds to (Mg<sub>0.56</sub>Fe<sub>0.26</sub>Zn<sub>0.11</sub>Mn<sub>0.01</sub>)<sub>Σ=0.94</sub>(U<sub>0.99</sub>O<sub>2</sub>)(S<sub>1.015</sub>O<sub>4</sub>)<sub>2</sub>·11H<sub>2</sub>O. (2) Mg(UO<sub>2</sub>)(SO<sub>4</sub>)<sub>2</sub>·11H<sub>2</sub>O.

**Occurrence:** A secondary phase on asphaltum found in efflorescent crusts on the surfaces of mine walls.

**Association:** Straßmannite, arsenuranospathite, gypsum, metakahlerite, nováčekite-II, uramarsite.

**Distribution:** In the Markey mine, Red Canyon, San Juan County, Utah, USA.

**Name:** Identifies the magnesium-analogue of *leydetite*.

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA (66647, 66648, 66649, and 66650).

**References:** (1) Kampf, A.R., J. Plášil, A.V. Kasatkin, B.P. Nash, and J. Marty (2019) Magnesioleydetite and straßmannite, two new uranyl sulfate minerals with sheet structures from Red Canyon, Utah. *Mineral. Mag.*, 83, 349-360.