

**Crystal Data:** Monoclinic. *Point Group:* 2/m. Crystals display {110}, {001}, {100},  $\{\bar{1}01\}$  and {101}. Typically, as aggregates, to 2 mm, of bladed crystals flattened on {001} and elongated along [010], to 0.2 mm.

**Physical Properties:** *Cleavage:* Perfect on {001}. *Tenacity:* Brittle. *Fracture:* Uneven. Hardness = ~2 D(meas.) = n.d. D(calc.) = 3.256 Weak green fluorescence in LW and SW UV. Easily soluble in water.

**Optical Properties:** Transparent (crystals), translucent (aggregates). *Color:* Pale yellow. *Streak:* White. *Luster:* Vitreous (crystals); pearly (aggregates). *Optical Class:* Biaxial (-).  $\alpha = 1.504$   $\beta = 1.597$   $\gamma = 1.628$   $2V(\text{meas.}) = 57(1)^\circ$   $2V(\text{calc.}) = 57.1^\circ$  *Pleochroism:* X = colorless, Y  $\approx$  Z = light yellow. *Absorption:* X < Y  $\approx$  Z. *Dispersion:* Weak, r > v. *Orientation:* X = b, Y  $\approx$  a, Z  $\approx$  c.

**Cell Data:** *Space Group:* C2/m. a = 11.6093(21) b = 6.7843(13) c = 15.1058(28)  $\beta = 91.378(3)^\circ$  Z = 2

**X-ray Powder Pattern:** Markey Mine, Red Canyon, San Juan County, Utah, USA. 5.46 (100), 7.59 (36), 3.383 (33), 2.864 (31), 3.82 (30), 4.64 (28), 2.028 (28)

Chemistry:	(1)	(2)
Na <sub>2</sub> O	14.54	15.88
MgO	3.05	3.45
UO <sub>3</sub>	47.95	48.88
CO <sub>2</sub>	[22.13]	22.55
H <sub>2</sub> O	[9.51]	9.24
Total	97.18	100.00

(1) Markey Mine, Red Canyon, San Juan County, Utah, USA; average of 6 electron microprobe analyses supplemented by Raman spectroscopy, H<sub>2</sub>O calculated for charge balance, CO<sub>2</sub> calculated as 6 C apfu; corresponds to Na<sub>5.60</sub>Mg<sub>0.90</sub>U<sub>2</sub>O<sub>28</sub>C<sub>6</sub>H<sub>12.60</sub>. (2) Na<sub>6</sub>Mg(UO<sub>2</sub>)<sub>2</sub>(CO<sub>3</sub>)<sub>6</sub>·6H<sub>2</sub>O.

**Occurrence:** A product of post-mining oxidation of primary minerals (uraninite) in the humid underground environment of a sandstone roll-front uranium deposit.

**Association:** Andersonite, natrozippeite, gypsum, anhydrite, hydromagnesite, bayleyite, čejkaite, johannite, chalcantite.

**Distribution:** From the Markey Mine, Red Canyon, White Canyon District, San Juan County, Utah, USA.

**Name:** Honors the Hungarian-American physicist, inventor and biologist Dr. Leó Szilárd (1898-1964).

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA (65645).

**References:** (1) Olds, T.A., L.R. Sadergaski, J. Plášil, A.R. Kampf, P.C. Burns, I.M. Steele, J. Marty, S.M. Carlson, and O.P. Mills (2017) Leószilárdite, the first Na, Mg-containing uranyl carbonate from the Markey Mine, San Juan County, Utah, USA. *Mineral. Mag.*, 81(5), 1039-1050. (2) (2018) *Amer. Mineral.*, 103, 333-334 (abs. ref. 1).