Línekite $K_2Ca_3[(UO_2)(CO_3)_3]_2{\cdot}8H_2O$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As square to rectangular tabular crystals, to ~0.5 mm, typically in multiple intergrowths to 1.2 mm.

Physical Properties: *Cleavage*: Perfect on {100}, very good on {010}. *Tenacity*: Brittle. *Fracture*: Uneven. Hardness = 2-3 D(meas.) = 2.922 D(calc.) = 2.904 Intense greenish yellow luminescence under SW and LW UV. Dissolves with release of bubbles in 10% HCl.

Optical Properties: Transparent. *Color*: Pale olive to khaki-green, pale khaki-green in transmitted light. *Streak*: Greenish white to yellowish white. *Luster*: Vitreous.
Optical Class: Biaxial(+). α = 1.546(2) β = 1.550 γ = 1.562(2) 2V(meas.) = Moderate.
2V(calc.) = 60° *Orientation*: *Y* = *a*, *X* = *b*, *Z* = *c*.

Cell Data: *Space Group*: *Pnnm*. *a* = 17.0069(5) *b* = 18.0273(5) *c* = 18.3374(5) Z = 8

X-Ray Diffraction Pattern: Geschieber vein, Svornost mine, Western Bohemia, Czech Republic. 8.627 (100), 6.436 (60), 5.153 (43), 4.592 (19), 4.053 (15), 4.505 (12), 5.935 (11)

Chemistry:

	(1)	(2)
Na_2O	0.06	
K_2O	6.89	7.58
CaO	14.11	13.54
CuO	0.12	
UO_3	48.76	46.03
CO_2	[22.51]	21.25
H_2O	[12.20]	11.60
Total	104.65	100.00

(1) Geschieber vein, Svornost mine, Western Bohemia, Czech Republic; average electron microprobe analysis supplemented by Raman spectroscopy, H_2O and CO_2 calculated, TGA = ~12.9 H_2O; corresponds to $(K_{1.73}Na_{0.02})_{\Sigma=1.75}(Ca_{2.97}Cu_{0.02})_{\Sigma=2.99}[(UO_2)(CO_3)_3]_{2.02}(H_2O)_{8.00}$.
(2) $K_2Ca_3[(UO_2)(CO_3)_3]_2{\cdot}8H_2O$.

Occurrence: A secondary mineral from uranium-rich aqueous solutions associated with post-mining processes.

Association: Grimselite, andersonite, liebigite, čejkaite, schröckingerite, agricolaite, ježekite, braunerite, gypsum.

Distribution: From the Geschieber vein, 5th level of the Svornost (Einigkeit) mine, Jáchymov ore district, Western Bohemia, Czech Republic.

Name: Honors Dr. Allan *Línek* (1925-1984), Czech physicist and crystallographer, Institute of Physics, Academy of Sciences of the Czech Republic, for his contributions to structure science.

Type Material: Department of Mineralogy and Petrology, National Museum, Prague, Czech Republic (P1P 2/2012).

References: (1) Plášil, J., J. Čejka, J. Sejkora, J. Hloušek, R. Škoda, M. Novák, M. Dušek, I. Císařová, I. Němec, and J. Ederová (2017) Línekite, $K_2Ca_3[(UO_2)(CO_3)_3]_2{\cdot}8H_2O$, a new uranyl carbonate mineral from Jáchymov, Czech Republic, J. Geosciences, 62(3), 201-213.