Lavinskyite-2*O* $K(LiCu)Cu_6(Si_4O_{11})_2(OH)_4$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As crystals, tabular on {010} and elongated along [001], to 0.5 mm.

Physical Properties: *Cleavage*: Perfect on {010}. *Fracture*: Uneven. *Tenacity*: Brittle. Hardness = ~5 D(meas.) = 3.61(3) D(calc.) = 3.62

Optical Properties: Transparent. *Color*: Light blue. *Streak*: Very pale blue. *Luster*: Vitreous. *Optical Class*: Biaxial (+). $\alpha = 1.675(1)$ $\beta = 1.686(1)$ $\gamma = 1.715(1)$ 2V(meas.) = 64(2)° 2V(calc.) = 64.2° *Pleochroism*: *X* = dark blue, *Y* = light blue, *Z* = light blue. *Dispersion*: None. *Absorption*: *X* > *Y* = *Z*.

Cell Data: Space Group: *Pcnb*. $a = 19.046(2)$ $b = 20.377(2)$ $c = 5.2497(6)$ Z = 4

X-ray Powder Pattern: Wessels mine, Kalahari Mn Fields, Northern Cape Province, South Africa. 10.291 (100), 3.321 (27), 6.994 (18), 4.984 (18), 9.608 (13), 3.964 (11), 9.006 (8)

Chemistry:

	(1)	(2)
SiO_2	42.85	42.33
CuO	46.13	49.03
K_2O	4.16	4.15
MgO	1.53	
Na_2O	0.27	
BaO	0.18	
MnO	0.08	
Li_2O	1.38	1.32
H_2O	[3.22]	3.17
Total	99.79	100.00

(1) Wessels mine, Kalahari Manganese Fields, Northern Cape Province, South Africa; average of 8 electron microprobe analyses supplemented by Raman spectroscopy, Li_2O by LA-ICP-MS, H_2O calculated; corresponds to $(K_{0.99}Ba_{0.01})_{\Sigma=1.00}(Li_{1.04}Cu_{0.93}Na_{0.10})_{\Sigma=2.07}(Cu_{5.57}Mg_{0.43}Mn_{0.01})_{\Sigma=6.01}(Si_{4.00}O_{11})_2(OH)_4$. (2) $K(LiCu)Cu_6(Si_4O_{11})_2(OH)_4$.

Polymorphism & Series: Polytype of lavinskyite-1*M*.

Occurrence: In a metamorphosed manganese deposit.

Association: Wesselsite, pectolite, richterite, sugilite, scottyite.

Distribution: From the central eastern orebody, Wessels mine, Kalahari Manganese Fields, Northern Cape Province, South Africa.

Name: Honors Robert Matthew Lavinsky (b. 1973), dealer in collectable minerals and crystals, donor of important mineral specimens to the Smithsonian Institution, Harvard University, California Institute of Technology, University of Arizona, and other institutions. Lavinsky is the largest contributor of information and photographs to Mindat (online database of mineralogical information) and has provided mineral specimens for scientific investigation.

Type Material: University of Arizona Mineral Museum (19335) and the RRUFF Project (R120057), Tucson, Arizona, USA.

References: (1) Kolitsch, U., S. Merlino, D. Belmonte, C. Carbone, R. Cabella, G. Lucchetti, and M.E. Ciriotti (2018) Lavinskyite-1*M*, $K(LiCu)Cu_6(Si_4O_{11})_2(OH)_4$, the monoclinic MDO equivalent of lavinskyite-2*O* (formerly lavinskyite), from the Cerchiara manganese mine, Liguria, Italy. Eur. J. Mineral., 30(4), 811-820. (2) (2019) Amer. Mineral., 104(4), 629 (abs. ref 1). (3) Yang, H., R.T. Downs, S.H. Evans**,** and W.W. Pinch (2014) Lavinskyite, $K(LiCu)Cu_6(Si_4O_{11})_2(OH)_4$, isotypic with plancheite, a new mineral from the Wessels mine, Kalahari Manganese Fields, South Africa. Amer. Mineral., 99, 525-530.