Fluorluanshiweiite $KLiAl_{1.5}\square_{0.5}(Si_{3.5}Al_{0.5})O_{10}F_2$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As a flaky residue replaced by Cs-rich mica, or as scaley aggregates with crystals to 1 cm.

Physical Properties: Cleavage: Perfect on {001}. *Tenacity*: Flexible. *Fracture*: Micaceous. Hardness = ~3 D(meas.) = 2.94(3) D(calc.) = 2.898

Optical Properties: Transparent. *Color*: Silvery white, grayish white to colorless in thin section. *Streak*: White. *Luster*: Vitreous, pearly on cleavage surfaces.
Optical Class: Biaxial (-). α = 1.554(1) β = 1.581(1) γ = 1.583(1) 2V(meas.) = 25° to 35° 2V(calc.) = 30.05°

Cell Data: *Space Group*: *C*2/*m*. *a* = 5.2030(5) *b* = 8.9894(6) *c* = 10.1253(9) β = 100.68(1)° Z = 2

X-ray Powder Pattern: Nanyangshan deposit, North Qinling Orogen, Henan Province, China.
2.586 (100), 3.628 (61), 3.349 (60), 4.519 (57), 3.091 (46), 1.506 (45), 8.427 (25)

Chemistry:

	(1)	(2)
K_2O	9.87	11.88
Rb_2O	2.86	
Cs_2O	0.86	
Na_2O	0.26	
FeO	0.26	
MnO	0.43	
Al_2O_3	23.65	25.73
SiO_2	52.42	53.07
F	9.35	9.59
Li_2O	3.85	3.77
-O = F	3.93	4.04
Total	99.88	100.00

(1) Nanyangshan deposit, North Qinling Orogen, Henan Province, China; average electron microprobe, IR and Raman spectroscopic and LA-MC-ICP-MS analyses; corresponds to $(K_{0.85}Rb_{0.12}Cs_{0.02}Na_{0.03})_{\Sigma=1.02}[Li_{1.05}Al_{1.44}(\square_{0.47}Fe_{0.01}Mn_{0.02})_{\Sigma=0.5}]_{\Sigma=2.99}(Si_{3.55}Al_{0.45})_{\Sigma=4}O_{10}F_2$.
(2) $KLiAl_{1.5}\square_{0.5}(Si_{3.5}Al_{0.5})O_{10}F_2$.

Mineral Group: Mica group.

Occurrence: In a Li-Cs-Ta granitic pegmatite deposit formed in the late stage of the evolution of the pegmatite-forming magmatic liquid.

Association: Luanshiweiite, polylithionite, cookeite, albite, quartz, spodumene, montebrasite, elbaite, fluorapatite, pollucite, nanpingite, tantalite-(Mn), columbite-(Mn), bismutotantalite, stibiotantalite, oxynatromicrolite, fluornatromicrolite.

Distribution: From the Nanyangshan deposit, North Qinling Orogen, western Henan Province, China.

Name: The prefix indicates the F-dominant at the A site analogue of *luanshiweiite.*
Can be described also as the K-dominant at the I site analogue of voloshinite.

Type Material: Geological Museum of China, Beijing, People's Republic of China (M16085).

References: (1) Qu, K., X. Sima, G. Li, G. Fan, G. Shen, X. Liu, Z. Xiao, H. Guo, L. Qiu, and Y. Wang (2020) Fluorluanshiweiite, $KLiAl_{1.5}\square_{0.5}(Si_{3.5}Al_{0.5})O_{10}F_2$, a new mineral of the mica group from the Nanyangshan LCT pegmatite deposit, North Qinling Orogen, China. Minerals, 10(2), 93, 1-11.