

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As subhedral to euhedral crystals to 200 μm .

Physical Properties: *Cleavage:* n.d. *Tenacity:* Brittle. *Fracture:* Irregular. Hardness = 8 D(meas.) = n.d. D(calc.) = 3.771 Light red fluorescence under 253.7 nm UV and light green fluorescence under 365 nm UV.

Optical Properties: Transparent. *Color:* Colorless. *Streak:* n.d. *Luster:* Vitreous.

Optical Class: Biaxial (-). $\alpha = 1.79(2)$ $\beta = 1.82(2)$ $\gamma = 1.83(2)$ $2V(\text{calc.}) = 60^\circ$

Orientation: $X = a$, $Y = b$, $Z = c$.

Cell Data: *Space Group:* Imma. $a = 5.659(1)$ $b = 16.898(1)$ $c = 7.994(1)$ $Z = 12$

X-Ray Diffraction Pattern: Xianghualing deposit, Nanling Range, Hunan Province, China. 3.388 (100), 1.437 (91), 2.132 (89), 1.590 (87), 2.836 (75), 2.868 (71), 1.792 (70)

Chemistry:	(1)	(2)
Al ₂ O ₃	80.70	94.46
Fe ₂ O ₃	8.16	
Li ₂ O	3.68	5.54
ZnO	3.25	
MnO	2.49	
MgO	1.70	
Na ₂ O	0.11	
CaO	0.08	
TiO ₂	0.02	
K ₂ O	0.01	
Cr ₂ O ₃	0.01	
Total	100.24	100.00

(1) Xianghualing deposit, Nanling Range, southern China; average electron microprobe and Raman spectroscopic analyses, Li by LA-ICP-MS; corresponds to [(Li_{0.355}Al_{0.138}Na_{0.005}Ca_{0.002}) $\Sigma=0.5$ (Al_{0.145}Fe³⁺_{0.147}Mg_{0.061}Zn_{0.058}Mn_{0.051}Si_{0.001}) $\Sigma=0.463$]Al₂O₄. (2) (Li_{0.5}Al_{0.5})Al₂O₄.

Polymorphism & Series: Synthetic compound has two polymorphs $P4_132$ and $Fd3m$.

Mineral Group: Isostructural with the spinel supergroup.

Occurrence: Of hydrothermal origin in mineralized skarn at the exocontact of a granite pluton.

Association: Fluorite, phlogopite, chrysoberyl, margarite, chlorite, ferronigerite-2N1S, zinconigerite-2N1S.

Distribution From the Xianghualing tin-polymetallic (Sn-W-Be-Li) deposit, Nanling Range, Linwu County, Hunan Province, southern China.

Name: Honors *Chu Kochen* (1890-1974), Chinese scientist and educator, the inaugurator of historical climatology, the leader of the “long march of academics,” the founder of the Department of Geosciences at Zhejiang University, and for major contributions to science and education.

Type Material: Geological Museum of China, Beijing, People’s Republic of China (M13818).

References: (1) Rao, C., X. Gu, R. Wang, Q. Xia, Y. Cai, C. Dong, F. Hatert, and Y. Hao (2022) Chukochenite, (Li_{0.5}Al_{0.5})Al₂O₄, a new lithium oxyspinel mineral from the Xianghualing skarn, Hunan Province, China. *Amer. Mineral.*, 107, 842-847.