

**Crystal Data:** Hexagonal. *Point Group:*  $\bar{3} 2/m$ . Crystals rarely well-formed, tabular, with {0001} and {h0hl}; commonly granular, to 2 mm, in dendritic aggregates.

**Physical Properties:** *Cleavage:* One, imperfect. Hardness = ~ 2.3 VHN = 107  
D(meas.) = 3.927 D(calc.) = 3.925

**Optical Properties:** Transparent. *Color:* Brownish red to dark brown when oxidized; deep red in transmitted light, with anomalous red interference colors. *Streak:* Pale yellow. *Luster:* Vitreous.  
*Optical Class:* Uniaxial (-).  $\omega = 1.82$   $\epsilon = 1.78$

**Cell Data:** *Space Group:*  $R\bar{3} m$ .  $a = 10.2114(10)$   $c = 25.689(3)$   $Z = 3$

**X-ray Powder Pattern:** Nanling area, China.

2.78 (10), 8.35 (9), 1.730 (8), 1.699 (8), 2.425 (7), 1.460 (7), 1.104 (6)

<b>Chemistry:</b>	(1)
Al <sub>2</sub> O <sub>3</sub>	0.51
FeO	[3.95]
Fe <sub>2</sub> O <sub>3</sub>	[1.31]
As <sub>2</sub> O <sub>3</sub>	43.45
MnO	0.16
MgO	25.77
CaO	13.73
Na <sub>2</sub> O	1.51
Li <sub>2</sub> O	0.95
TiO <sub>2</sub>	0.28
F	14.36
H <sub>2</sub> O	0.09
- O = F <sub>2</sub>	6.05
Total	100.01

(1) Nanling area, China; average of 29 electron microprobe analyses supplemented by Mössbauer spectroscopy and SIMS; corresponds to (Na<sub>0.90</sub>Li<sub>0.10</sub>) $\Sigma=1.00$ (Ca<sub>4.41</sub>Li<sub>1.06</sub>Mg<sub>0.17</sub>Na<sub>0.06</sub>Mn<sub>0.05</sub>□<sub>0.25</sub>) $\Sigma=6.00$ (Mg<sub>11.38</sub>Fe<sup>3+</sup><sub>0.30</sub>Al<sub>0.29</sub>Ti<sub>0.03</sub>) $\Sigma=12.00$ (AsO<sub>3</sub>)<sub>2</sub>[Fe<sup>2+</sup>(AsO<sub>3</sub>)<sub>6</sub>][F<sub>13.77</sub>(OH)<sub>0.16</sub>] $\Sigma=13.93$ .

**Occurrence:** Along a contact between greisenized granite and dolomitic limestone.

**Association:** Fluorite, fluorborite, zinnwaldite, magnesian dolomite, arsenopyrite, pyrrhotite, gahnite, nigerite.

**Distribution:** From an undisclosed locality in the Nanling area, Hunan Province, southern China.

**Name:** For the locality, *Nanling* area, China, that produced the first samples.

**Type Material:** n.d.

**References:** (1) Gu Xiongfei, Ding Kuishou, and Xu Yingnian (1976) A new arsenite mineral from southern China. *Geochemica*, 2, 107-112 (in Chinese with English abs.). (2) (1977) *Amer. Mineral.*, 62, 1058-1059 (abs. ref. 1). (3) (1977) *Mineral. Abs.*, 28, 80-81 (abs. ref. 1). (4) Yang, Z., G. Giester, K. Ding, and E. Tillmanns (2011) Crystal structure of nanlingite - the first mineral with a [Fe(AsO<sub>3</sub>)<sub>6</sub>] configuration. *Eur. J. Mineral.*, 23, 63-71. (5) (2012) *Amer. Mineral.*, 97, 2071 (abs. ref. 4)