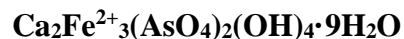


**Wallkilldellite-(Fe)**

**Crystal Data:** Hexagonal. *Point Group:*  $6/m\ 2/m\ 2/m, \bar{6}\ m2$ , or  $6mm$ . As spherules, to 0.1 mm, consisting of extremely thin radiating plates, tabular on {0001}.

**Physical Properties:** *Cleavage:* Perfect on {0001}. *Hardness* = 2-3 *D(meas.)* = 3.0(1) *D(calc.)* = 2.92(2) Soluble in HCl.

**Optical Properties:** Translucent. *Color:* Brown-yellow. *Streak:* Light brown. *Luster:* Vitreous on cleavage surfaces; slightly resinous on fracture surfaces.

*Optical Class:* Uniaxial (-). *Pleochroism:* Strong, *O* = brown; *E* = pale brown-yellow.  $\omega = 1.750$   $\epsilon = \text{n.d.}$

**Cell Data:** *Space Group:*  $P6_3/mmc, P\bar{6}\ 2c$ , or  $P6_3mc$ .  $a = 6.548(5)$   $c = 23.49(3)$   $Z = 1$

**X-ray Powder Pattern:** Roua mine, Alpes-Maritimes, France.

11.600 (100), 5.670 (80), 3.275 (70), 1.641 (25), 2.760 (15), 2.850 (10), 2.547 (10)

Chemistry:	(1)	(2)
As <sub>2</sub> O <sub>5</sub>	30.03	38.84
SiO <sub>2</sub>	1.27	
FeO	27.25	27.40
CuO	2.04	
CaO	13.68	14.63
H <sub>2</sub> O	[25.73]	[19.13]
Total	100.00	100.00

(1) Roua mine, Alpes-Maritimes, France; H<sub>2</sub>O by difference; corresponding to  $(\text{Ca}_{1.84}\text{Cu}_{0.20})_{\Sigma=2.04}\text{Fe}_{2.87}(\text{As}_{1.98}\text{Si}_{0.16})_{\Sigma=2.14}\text{O}_{8.15}(\text{OH})_{4.08} \cdot 8.76\text{H}_2\text{O}$ . (2) Kura mine, Oita Prefecture, Japan; average electron microprobe analysis, H<sub>2</sub>O by difference; corresponding to  $\text{Ca}_{1.76}\text{Fe}_{2.56}(\text{AsO}_4)_{2.28}(\text{OH})_{1.82} \cdot 6.23\text{H}_2\text{O}$ .

**Occurrence:** Secondary in the oxidation zone of copper arsenide deposits.

**Association:** Cuprite, native copper and silver, algodonite, domeykite, koutekite, olivenite, kolfanite, janggunitite, malachite (Roua mine); arsenopyrite, yukonite, symplectite, parasymplectite, scorodite, quartz (Kura mine).

**Distribution:** From the Roua mine, Alpes-Maritimes, France and the Uriya deposit, Kura mine, Saiki City, Oita Prefecture, Japan.

**Name:** The suffix, *Fe*, indicates the iron analog of *wallkilldellite*.

**Type Material:** Natural History Museum, Geneva, Switzerland.

**References:** (1) Sharp, H., G. Mari, and P.J. Chiappero (1999) Wallkilldellite-Fe,  $(\text{Ca,Cu})_4\text{Fe}_6[(\text{As,Si})\text{O}_4]_4(\text{OH})_8 \cdot 18\text{H}_2\text{O}$ , a new mineral from the Riviéro Scientifique, 12, 5-12. (2) (2001) Amer. Mineral., 86, 198 (abs. ref. 1). (3) Enju, S. and S. Uehara (2015) Yukonite and wallkilldellite-(Fe) from the Kiura mine, Oita Prefecture, Japan. J. Mineral. and Petro. Sci., 110, 150-155.