

Barahonaite-(Fe) $(\text{Ca, Cu, Na, Fe}^{3+}, \text{Al})_{12}\text{Fe}^{3+}_2(\text{AsO}_4)_8(\text{OH, Cl})_x \cdot n\text{H}_2\text{O}$

Crystal Data: Monoclinic. *Point Group:* 2/m, 2 or m. As thin tabular composite crystals forming rosettes, to 0.2 mm.

Physical Properties: *Cleavage:* None. *Fracture:* n.d. *Tenacity:* Brittle.
Hardness = 2-3 (possibly). D(meas.) = n.d. D(calc.) = 2.93-3.11

Optical Properties: Transparent to translucent. *Color:* Greenish yellow. *Streak:* White to pale yellow. *Luster:* Vitreous.
Optical Class: Biaxial (-). $\alpha = 1.664(2)$ $\beta \approx \gamma$ $\gamma = 1.677(2)$ 2V(meas.) = 45-80°

Cell Data: *Space Group:* n.d. $a = 10.161(7)$ $b = 22.39(2)$ $c = 10.545(10)$ $\beta = 93.3(1)^\circ$ $Z = 2$

X-ray Powder Pattern: Dolores prospect, Murcia province, Spain.
22.0 (100), 11.2 (70), 2.763 (30), 5.068 (20), 3.345 (20), 2.659 (20), 2.541 (20)

Chemistry:	(1)
Na ₂ O	2.07
MgO	0.14
CaO	12.96
CuO	12.41
Al ₂ O ₃	1.71
Fe ₂ O ₃	13.78
SiO ₂	0.33
P ₂ O ₅	0.42
As ₂ O ₅	41.18
SO ₃	0.29
Cl	0.91
-O = Cl	0.21
H ₂ O	[14.01]
Total	100.00

(1) Dolores prospect, Murcia province, Spain; average of 7 electron microprobe analyses, H₂O by difference; anionic groups confirmed by IR, corresponding to
 $(\text{Ca}_{4.95}\text{Cu}_{3.34}\text{Na}_{1.43}\text{Mg}_{0.07}\text{Fe}^{3+}_{1.70}\text{Al}_{0.72})_{\Sigma=12.21}\text{Fe}^{3+}_{2.00}[(\text{As}_{0.96}\text{P}_{0.02}\text{S}_{0.01}\text{Si}_{0.01})\text{O}_4]_8$
 $[(\text{OH})_{6.82}\text{Cl}_{0.55}]_{\Sigma=7.37} \cdot 13.2\text{H}_2\text{O}$.

Polymorphism & Series: Complete solid solution with barahonaite-(Al).

Occurrence: A secondary mineral in the oxidized zone of a sulfide deposit.

Association: Arsenocrandallite, arsenogoyazite, conichalcite, cobaltarthurite, chlorargyrite, olivenite, azurite, cornwallite, pharmacosiderite, zálesiite, lavendulan.

Distribution: Dolores prospect, near Pastrana, Murcia province, northern Spain.

Name: Honors Antonio *Barahona* (b. 1937) of Madrid who provided the original specimens. The suffix identifies the iron dominant member of the series.

Type Material: Canadian Museum of Nature, Ottawa, Ontario (85716).

References: (1) Viñals, J., J.L. Jambor, M. Raudsepp, A.C. Roberts, J.D. Grice, M. Kokinos, and W.S. Wise (2008) Barahonaite-(Al) and barahonaite-(Fe), new Ca-Cu arsenate mineral species from Murcia province, Southeastern Spain, and Gold Hill, Utah. *Can. Mineral.*, 46, 205-217. (2) (2008) *Amer. Mineral.*, 93, 1941-1942 (abs. ref. 1).