

Barahonaite-(Fe)

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 (-). $\alpha = 1.664(2)$ $\beta \approx \gamma$ $\gamma = 1.677(2)$ $2V(\text{meas.}) = 45-80^\circ$

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
<u>H₂O</u>	<u>14.01</u>
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
(Ca_{4.95}Cu_{3.34}Na_{1.43}Mg_{0.07}Fe³⁺_{1.70}Al_{0.72}) $\Sigma=12.21$ Fe³⁺_{2.00}[(As_{0.96}P_{0.02}S_{0.01}Si_{0.01})O₄]₈
[(OH)_{6.82}Cl_{0.55}] $\Sigma=7.37$ ·13.2H₂O.

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, zálesfite, lavendulan.

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

Name: Honors Antonio Barahona (b 1937) of Madrid who provided the original specimens.

Type Material: Canadian Museum of Nature, 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).