

Barahonaite-(Al)

Crystal Data: Monoclinic. *Point Group:* 2/m, 2 or m. As coatings of curved, 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.) = 3.03 D(calc.) = 2.93-3.11

Optical Properties: Transparent to translucent. *Color:* Pale blue. *Streak:* White.
Luster: Vitreous.

Optical Class: Biaxial (-). $\alpha = 1.616(2)$ $\beta \approx \gamma$ $\gamma = 1.622(2)$ $2V(\text{meas.}) = 45-80^\circ$

Cell Data: *Space Group:* n.d. $a = 9.964(3)$ $b = 22.43(1)$ $c = 10.555(6)$ $\beta = 92.76(6)^\circ$ $Z = 2$

X-ray Powder Pattern: Dolores prospect, Murcia province, Spain.

22.0 (100), 11.16 (70), 4.983 (50), 3.333 (45), 2.493 (35), 3.003 (30), 3.655 (25), 2.654 (25)

Chemistry:	(1)
Na ₂ O	1.65
MgO	0.00
CaO	15.71
CuO	14.59
Al ₂ O ₃	9.52
Fe ₂ O ₃	0.10
SiO ₂	0.14
P ₂ O ₅	0.35
As ₂ O ₅	41.16
SO ₃	1.24
Cl	0.06
-O=Cl	0.01
<u>H₂O</u>	<u>14.49</u>
Total	100.00

(1) Dolores prospect, Murcia province, Spain; average of 6 electron microprobe analyses, H₂O by difference; anionic groups confirmed by IR, corresponding to
(Ca_{5.75}Cu_{3.77}Na_{1.09}Al_{1.84}Fe³⁺_{0.03})_{Σ=12.48}Al_{2.00}[(As_{0.94}S_{0.04}P_{0.01}Si_{0.01})O₄]₈[(OH)_{7.95}Cl_{0.04}]_{Σ=7.99}·12.5H₂O.

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

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

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

Distribution: Dolores prospect, near Pastrana, Murcia province, northern Spain; Gold Hill Mine, Toole County, Utah, USA.

Name: For its mineralogical and compositional relationship with barahonaite-(Fe).

Type Material: Canadian Museum of Nature, Ontario, 85719.

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).