

Barquillite

$\text{Cu}_2(\text{Cd}, \text{Fe}^{2+})\text{GeS}_4$

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Crystal Data: Tetragonal. *Point Group:* $\bar{4}2m$. Platy crystals, to 50 μm , commonly in rosettelike aggregates.

Physical Properties: Hardness = 4–4.5 VHN = 180–300 D(meas.) = n.d.
D(calc.) = 4.53

Optical Properties: Opaque. *Color:* In reflected light, gray with a violet tint.

Luster: Metallic.

Optical Class: Uniaxial. *Pleochroism:* Very Weak. *Anisotropism:* Very weak.

Bireflectance: Very weak.

R: (400) 24.8, (420) 24.8, (440) 24.7, (460) 24.4, (480) 24.2, (500) 23.8, (520) 23.5, (540) 23.3, (560) 23.2, (580) 23.0, (600) 23.1, (620) 23.1, (640) 23.3, (660) 23.5, (680) 23.3, (700) 22.9

Cell Data: *Space Group:* $I\bar{4}2m$ (by analogy to briartite). $a = 5.45(4)$ $c = 10.61(1)$ $Z = 2$

X-ray Powder Pattern: Barquilla deposit, Spain.

3.10 (100), 1.92 (80), 1.89 (70), 1.64 (60), 1.60 (20), 2.73 (10)

Chemistry:

	(1)
Ag	0.26
Cu	30.67
Zn	0.09
Cd	20.38
Fe	2.20
Mn	0.43
Sn	0.17
Ge	14.99
Ga	0.05
Sb	0.09
Bi	0.16
S	29.42
Total	98.91

(1) Barquilla deposit, Spain; by electron microprobe, average of 34 analyses of nine grains, corresponds to $(\text{Cu}_{2.10}\text{Ag}_{0.01})_{\Sigma=2.11}(\text{Cd}_{0.79}\text{Fe}_{0.17}\text{Mn}_{0.03}\text{Zn}_{0.01})_{\Sigma=1.00}(\text{Ge}_{0.90}\text{Sn}_{0.01})_{\Sigma=0.91}\text{S}_{3.98}$.

Mineral Group: Stannite group.

Occurrence: Very rare, in a hydrothermal Sn–Ge–Cd–Cu–Fe vein deposit.

Association: Tetrahedrite, greenockite, chalcopyrite, bornite, mawsonite, stannite, stannoidite, mohite, digenite.

Distribution: From the Barquilla deposit, southwest Salamanca Province, Spain [TL].

Name: For the village of Barquilla, Spain, near the type locality.

Type Material: Museo Geominero, Madrid, MGM-3000; Department of Geology, Salamanca; Area of Crystallography and Mineralogy, Badajoz, Spain; Institute for Mineralogy, Ruhr University, Bochum, Germany; Laboratory of Crystallography, Nancy, France.

References: (1) Murciego, A., M.I. Pascua, J. Babkine, Y. Dusauroy, O. Medenbach, and H.-J. Bernhardt (1999) Barquillite, $\text{Cu}_2(\text{Cd}, \text{Fe})\text{GeS}_4$, a new mineral from the Barquilla deposit, Salamanca, Spain. *Eur. J. Mineral.*, 11, 111–117. (2) (??) *Amer. Mineral.*, ??, ??–?? (abs. ref. 1).