Bouazzerite $Bi_6(Mg, Co)_{11}Fe_{14}(AsO_4)_{18}O_{12}(OH)_4 \cdot 86H_2O$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As prismatic {021} crystals to 0.5 mm terminated by {110}.

Physical Properties: *Cleavage*: Good on {021}, fair on {100}. *Tenacity*: Very brittle. *Fracture*: Uneven. Hardness = n.d. D(meas.) = n.d. D(calc.) = 2.81

Optical Properties: Translucent. *Color*: Pale apple-green. *Streak*: Colorless. *Luster*: Adamantine. *Optical Class*: Biaxial. *n*(min.) = 1.657 *n*(max.) = 1.660 (both measured on the (021) cleavage face) *Pleochroism*: Very weak, yellow to pale yellow.

Cell Data: *Space Group*: $P2_1/n$. a = 13.6322(13) b = 30.469(3) c = 18.4671(18) β = 91.134(2)° Z = 2

X-Ray Diffraction Pattern: Bou Azzer mine, Anti-Atlas, Morocco.
11.79 (100), 10.98 (80), 10.16 (80), 7.900 (80), 12.45 (70), 15.78 (60), 3.414 (40)

Chemistry:

	(1)
As_2O_5	35.55
CrO_3	1.15
SiO_2	0.35
Bi_2O_3	25.97
Fe_2O_3	18.30
MgO	6.18
CoO	0.65
NiO	0.17
CaO	0.23
H_2O	[30.08]
Total	118.6

(1) Bou Azzer mine, Anti-Atlas, Morocco; average electron microprobe analysis, H_2O calculated; corresponds to $Bi_{6.14}Fe_{12.6}Mg_{8.45}Co_{0.48}Ni_{0.12}Ca_{0.23}(As_{17.0}Cr_{0.64}Si_{0.32})_{\Sigma=18.0}O_{174.6}H_{184}$.

Occurrence: A product of the weathering of a hydrothermal As-Co-Ni-Ag-Au vein.

Association: Quartz, chalcopyrite, native gold, erythrite, talmessite/roselite-beta, Cr-bearing yukonite, alumopharmacosiderite, powellite, a blue-green copper arsenate related to geminite.

Distribution: From “Filon 7”, Bou Azzer mine, Anti-Atlas, Morocco.

Name: For the *Bou Azzer* mine and the similarly named district, Morocco.

Type Material: Geological Museum, Lausanne, Switzerland (MGL 79798 and MGL 79803).

References: (1) Brugger, J., N. Meisser, S. Krivovichev, T. Armbruster, and G. Favreau (2007) Mineralogy and crystal structure of bouazzerite from Bou Azzer, Anti-Atlas, Morocco: Bi-As-Fe nanoclusters containing Fe^{3+} in trigonal prismatic coordination. Amer. Mineral., 92, 1630-1639.