Juanitaite $(Cu,Ca,Fe)_{10}Bi(AsO_4)_4(OH)_{11}\cdot 2H_2O$

Crystal Data: Tetragonal. *Point Group:* 4/*m* 2/*m* 2/*m*. As square plates with 'rounded' corners, flattened on {001}, to 150 μm, in sheaflike aggregates and rosettes.

Physical Properties: *Cleavage:* Perfect on {001} and {110}, good on {100}. *Tenacity*: Flexible. Hardness = ~ 1 D(meas.) = 3.61(5) D(calc.) = 3.56

Optical Properties: Translucent. *Color:* Olive-green to grass-green. *Streak*: Pale greenish yellow. *Luster*: Resinous to dull; reflections from {001} often appear bronzy. *Optical Class:* Uniaxial (-). ω = 1.785(5) ε = 1.705(5) *Pleochroism*: *O* = olive-brown, *E* = olive-gre*en. S*ubparallel aggregates are biaxial with 2V(meas.) = ~ 20°.

Cell Data: *Space Group: P*4_2/*nnm.* *a* = 9.961(3) *c* = 29.19(2) Z = 4

X-ray Powder Pattern: Gold Hill mine, Tooele County, Utah, USA.
14.6 (100), 6.34 (70), 3.146 (60), 7.04 (50), 5.07 (50), 2.535 (50), 3.518 (40)

Chemistry:	(1)	(2)
CaO	8.64	8.65
FeO	2.32	2.30
CuO	35.97	36.09
Bi_2O_3	14.82	14.91
As_2O_5	29.35	29.41
H_2O	[8.90]	8.65
Total	100.00	100.00

(1) Gold Hill mine, Tooele County, Utah, USA; average of 7 electron microprobe analyses supplemented by IR spectroscopy, H_2O by difference; corresponds to $(Cu_{7.03}Ca_{2.39}Fe_{0.50})_{\Sigma=9.92}Bi_{0.99}(AsO_4)_{3.97}(OH)_{10.90}\cdot 2.22H_2O$. (2) $(Cu_{7.09}Ca_{2.41}Fe_{0.50})_{\Sigma=10.00}(AsO_4)_4(OH)_{11}\cdot 2H_2O$.

Occurrence: A secondary mineral from the oxidation of tennantite, chalcopyrite, and pyrite in quartz veins.

Association: Mixite, conichalcite, connellite, tyrolite, azurite, gold, quartz.

Distribution: From the 30 and 150 foot levels, Gold Hill mine, western Tooele County, Utah, USA.

Name: Honors Juanita Curtis, the mineral collector, who found the mineral.

Type Material: Los Angeles County Museum of Natural History, Los Angeles, California, USA (45266 and 45267).

References: (1) Kampf, A.R., W.S. Wise, and G.R. Rossman (2000) Juanitaite; a new mineral from Gold Hill, Utah. Mineral. Record, 31(4), 301-305. (2) (2001) Amer. Mineral., 86, 376-377 (abs. ref. 1).