

**Juanitaite****(Cu,Ca,Fe)<sub>10</sub>Bi(AsO<sub>4</sub>)<sub>4</sub>(OH)<sub>11</sub>·2H<sub>2</sub>O**

**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 (-).  $\omega = 1.785(5)$   $\varepsilon = 1.705(5)$  *Pleochroism:* *O* = olive-brown, *E* = olive-green. Subparallel aggregates are biaxial with 2V(meas.) = ~ 20°.

**Cell Data:** *Space Group:* P4<sub>2</sub>/nm.  $a = 9.961(3)$   $c = 29.19(2)$   $Z = 4$

**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)

<b>Chemistry:</b>	(1)	(2)
CaO	8.64	8.65
FeO	2.32	2.30
CuO	35.97	36.09
Bi <sub>2</sub> O <sub>3</sub>	14.82	14.91
As <sub>2</sub> O <sub>5</sub>	29.35	29.41
H <sub>2</sub> O	[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<sub>2</sub>O by difference; corresponds to (Cu<sub>7.03</sub>Ca<sub>2.39</sub>Fe<sub>0.50</sub>) $\Sigma=9.92$  Bi<sub>0.99</sub>(AsO<sub>4</sub>)<sub>3.97</sub>(OH)<sub>10.90</sub>·2.22H<sub>2</sub>O. (2) (Cu<sub>7.09</sub>Ca<sub>2.41</sub>Fe<sub>0.50</sub>) $\Sigma=10.00$ (AsO<sub>4</sub>)<sub>4</sub>(OH)<sub>11</sub>·2H<sub>2</sub>O.

**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).