$\odot$ 2001 Mineral Data Publishing, version 1.2

**Crystal Data:** Monoclinic, probable. *Point Group:* n.d. As minute, twisted or curved beaded spherules of radial fibers, composed of crystals; in seams, exhibiting a silky, fibrous structure on broken surfaces.

**Physical Properties:** Hardness = 2 D(meas.) = 2.80(2) D(calc.) = [3.26]

**Optical Properties:** Transparent to translucent. *Color:* Faïence-blue; in thin section, rich blue. *Luster:* Nonmetallic, silky.

Optical Class: Biaxial (–). Orientation:  $Y \simeq$  length.  $\alpha = 1.610 \quad \beta = 1.650 \quad \gamma = 1.650 \quad 2V(\text{meas.}) = \text{Small.}$ 

**Cell Data:** Space Group: n.d. a = 12.89 b = 6.055 c = 19.11  $\beta = 90.42^{\circ}$  Z = [2]

**X-ray Powder Pattern:** Christmas, Arizona, USA. 12.89 (100), 3.168 (70), 7.663 (50), 10.62 (40), 9.556 (40), 4.491 (40), 4.174 (40)

Chemistry:

	(1)	(2)
$SiO_2$	40.8	39.66
$\mathrm{FeO}$	0.3	
CuO	43.6	47.26
MgO	1.7	
CaO	1.8	
$\rm H_2O$	13.8	13.08
Total	102.0	100.00

(1) Christmas, Arizona, USA; average of two analyses; after recalculation to 100%, corresponds to  $(Cu_{7.87}Mg_{0.61}Ca_{0.46}Fe_{0.06})_{\Sigma=9.00}Si_{9.75}O_{28.5} \cdot 11H_2O.$  (2)  $Cu_9Si_{10}O_{29} \cdot 11H_2O.$ 

**Occurrence:** A retrograde metamorphic or mesogene mineral, formed at the expense of a prograde calc-silicate and sulfide assemblage in tactites; typically in fractures or crackled zones cutting garnet-diopside rock, replacing both these silicates and calcite.

**Association:** Kinoite, gilalite, stringhamite, junitoite, clinohedrite, xonotlite, apophyllite, calcite, tobermorite.

Distribution: In the Christmas copper mine, Gila Co., Arizona, USA.

Name: For the Apache Indians who inhabit the region in Arizona, USA, where it occurs.

**Type Material:** University of Arizona, Tucson, Arizona, USA; The Natural History Museum, London, England, 1980,532.

**References:** (1) Cesbron, F.P. and S.A. Williams (1980) Apachite and gilalite, two new copper silicates from Christmas, Arizona. Mineral. Mag., 43, 639–641. (2) (1980) Amer. Mineral., 65, 1065 (abs. ref. 1).