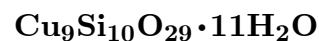


Apachite



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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 $D(\text{meas.}) = 2.80(2)$ $D(\text{calc.}) = [3.26]$

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

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

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
FeO	0.3	
CuO	43.6	47.26
MgO	1.7	
CaO	1.8	
H ₂ O	13.8	13.08
Total	102.0	100.00

(1) Christmas, Arizona, USA; average of two analyses; after recalculation to 100%, corresponds to $(\text{Cu}_{7.87}\text{Mg}_{0.61}\text{Ca}_{0.46}\text{Fe}_{0.06})_{\Sigma=9.00}\text{Si}_{9.75}\text{O}_{28.5} \cdot 11\text{H}_2\text{O}$. (2) $\text{Cu}_9\text{Si}_{10}\text{O}_{29} \cdot 11\text{H}_2\text{O}$.

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).