Jonesite $KBa_2Ti_2(Si_5Al)O_{18}\cdot nH_2O$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. Crystals are slender blades, with prismatic {210}, {310}, and terminated by the dome {101}. Commonly as rosettes of many such crystals, to 3 mm.

Physical Properties: *Cleavage*: Distinct on {010}. *Fracture*: Irregular. Hardness = 3-4
D(meas.) = 3.25(1) D(calc.) = 3.17 Fluoresces dull orange under SW UV.

Optical Properties: Transparent to translucent. *Color*: Colorless.
Optical Class: Biaxial (+). *Orientation*: $X = b$; $Y = a$; $Z = c$. $\alpha = 1.641(1)$ $\beta = 1.660(1)$ $\gamma = 1.682(1)$
2V(meas.) = 76°-78°

Cell Data: *Space Group*: $P2_1/m$. $a = 10.618(2)$ $b = 25.918(4)$ $c = 8.6945(14)$ $\beta = 127.633(3)°$ Z = 4

X-ray Powder Pattern: Gem mine, California, USA.
12.95 (100), 3.031 (45), 2.652 (30), 2.228 (20), 3.008 (18), 2.073 (18), 2.596 (17)

Chemistry:

	(1)		(1)
SiO_2	32.54	MgO	0.111
TiO_2	17.31	CaO	0.045
B_2O_3	0.008	SrO	0.051
Al_2O_3	5.52	BaO	34.88
Fe_2O_3	0.16	Na_2O	0.67
Nb_2O_5	0.022	K_2O	2.70
MnO	0.035	H_2O	5.9
		Total	99.952

(1) Gem mine, California, USA; weighted average of 20 electron microprobe and ion probe analyses; corresponds to $(Ba_{2.10}Mg_{0.02}Fe_{0.02})_{\Sigma=2.14}(K_{0.53}Na_{0.20})_{\Sigma=0.73}Ti_{2.00}Al_{1.00}Si_{4.99}O_{18}\cdot 3H_2O$.

Occurrence: In fractures and cavities of brecciated greenstone enclosed in blueschist.

Association: Neptunite, benitoite, joaquinite, natrolite.

Distribution: In the USA, at the Gem mine, San Benito Co., California.

Name: For Francis Tucker *Jones* (1905-1993), Research Chemical Microscopist of Berkeley, California, USA, who discovered the mineral.

Type Material: University of California, Santa Barbara, California, 7325; American Museum of Natural History, New York, New York, USA.

References: (1) Wise, W.S., A. Pabst, and J.R. Hinthorne (1977) Jonesite, a new mineral from the Benitoite Gem mine, San Benito County, California. Mineral. Record, 8, 453-456.
(2) Krivovivhev S.V. and T. Armbruster (2004) The crystal structure of jonesite, $Ba_2(K,Na)[Ti_2(Si_5Al)O_{18}(H_2O)](H_2O)n$: A first example of titanosilicate with porous double layers. Amer. Mineral., 89, 314-318.