Brannockite $KLi_3Sn_2Si_{12}O_{30}$

Crystal Data: Hexagonal. *Point Group:* $6/m\ 2/m\ 2/m$. In very thin hexagonal plates, with {0001} dominant, to 1 mm. *Twinning:* Common, $\perp$ [0001], observable only by X-ray study.

Physical Properties: *Tenacity:* Brittle. Hardness = n.d. D(meas.) = 2.980 D(calc.) = 3.08 Fluoresces bright bluish white in SW UV.

Optical Properties: Semitransparent. *Color:* Colorless. *Luster:* Vitreous. *Optical Class:* Uniaxial (–). $\omega = 1.567$ $\epsilon = 1.566$

Cell Data: *Space Group:* $P6/mcc$. a = 10.002(2) $c = 14.263(3)$ Z = 2

X-ray Powder Pattern: Kings Mountain, North Carolina, USA.
4.109 (10), 2.905 (9), 7.141 (8), 4.343 (8), 5.714 (7), 8.693 (6), 2.681 (6)

Chemistry:

	(1)	(2)
SiO_2	65.8	64.70
SnO_2	28.2	27.05
Li_2O	3.75	4.02
Na_2O	0.74	
K_2O	3.72	4.23
Total	102.2	100.00

(1) Kings Mountain, North Carolina, USA; by electron microprobe, Li, Na, and K by flame photometry. (2) $KLi_3Sn_2Si_{12}O_{30}$.

Mineral Group: Milarite group.

Occurrence: In the late hydrothermal portions of a Li-Sn-rich pegmatite, in vugs and on flat fracture surfaces.

Association: Bavenite, pyrite, tetrawickmanite, stannian titanite, albite, quartz.

Distribution: From the Foote mine, Kings Mountain, Cleveland Co., North Carolina, USA.

Name: Honoring Dr. Kent Combs Brannock (1923–1973), Kingsport, Tennessee, USA, chemist and mineral collector.

Type Material: National Museum of Natural History, Washington, D.C., USA, 125045.

References: (1) White, J.S., Jr., J.E. Arem, J.A. Nelen, P.B. Leavens, and R.W. Thomssen (1973) Brannockite, a new tin mineral. Mineral. Record, 4, 73–76. (2) (1973) Amer. Mineral., 58, 1111 (abs. ref. 1). (3) Armbruster, T. and R. Oberhänsli (1988) Crystal chemistry of double-ring silicates: structures of sugilite and brannockite. Amer. Mineral., 73, 595–600.