

**Crystal Data:** Monoclinic. *Point Group:* 2. As rectangular blades, elongated and striated parallel to [010] and flattened on {001}. Crystals display prominent {001} bounded by {100} and {011}. *Twinning:* Common on {001}.

**Physical Properties:** *Cleavage:* Perfect on {001}, fair on {100}. *Fracture:* Irregular. *Tenacity:* Brittle, somewhat flexible. Hardness = ~ 2 D(meas.) = 2.18(2) D(calc.) = 2.237

**Optical Properties:** Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous to pearly. *Optical Class:* Biaxial (+).  $\alpha = 1.477$   $\beta = 1.481$   $\gamma(\text{calc.}) = 1.492$   $2V(\text{meas.}) = 63.8(6)^\circ$  *Orientation:*  $Y = b$ ;  $Z \wedge c \approx 22^\circ$  (obtuse  $\beta$ ). *Pleochroism:* None.

**Cell Data:** *Space Group:* C2.  $a = 13.601(4)$   $b = 4.9222(10)$   $c = 16.092(5)$   $\beta = 111.578(19)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Esquire #1 claim, near Rush Creek, Fresno County, California, USA. 4.191 (100), 4.649 (66), 3.339 (65), 7.02 (38), 2.261(35), 5.11 (33), 2.343 (33)

Chemistry:	(1)	(2)
BaO	25.65	23.96
SiO <sub>2</sub>	63.60	56.33
H <sub>2</sub> O	[22.41]	19.71
Total	111.66	100.00

- (1) Esquire #1 claim, near Rush Creek, Fresno County, California, USA.; average of 6 electron microprobe analyses, H<sub>2</sub>O calculated from structure; corresponds to Ba<sub>0.95</sub>Si<sub>6.00</sub>O<sub>20</sub>H<sub>14.10</sub>.  
 (2) BaSi<sub>6</sub>O<sub>13</sub>·7H<sub>2</sub>O.

**Occurrence:** Formed by low-temperature hydrothermal alteration of sanbornite, during contact metamorphism of Ba-rich sediments.

**Association:** Cerchiarait-(Al), kampfite, macdonaldite, pyrrhotite, quartz, titantaramellite, traskite, witherite, opal (Esquire #1 claim); fencooperite, gillespite, macdonaldite, quartz, titantaramellite, witherite, opal (Trumbull Peak).

**Distribution:** From the Esquire #1 claim, near Rush Creek and the Esquire #8 claim, on Big Creek, eastern Fresno County and on the NW slope of Trumbull Peak, Mariposa County, California, USA.

**Name:** Named for the Esquire #1 claim, where the first specimens were collected.

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA (64540-64543 from the Esquire #1 claim and 64544 from Trumbull Peak).

**References:** (1) Kampf, A.R., R.M. Housley, G.E. Dunning, and R.E. Walstrom (2015) Esquireite, BaSi<sub>6</sub>O<sub>13</sub>·7H<sub>2</sub>O, a new layer silicate from the barium silicate deposits of California. *Can. Mineral.*, 53(1), 3-12. (2) (2016) *Amer. Mineral.*, 101, 2356-2357 (abs. ref. 1).