

**Crystal Data:** Monoclinic. *Point Group:* *m*. Platy crystals platy, flattened on {100}, elongated along [011], or slender prismatic to fibrous, with {100}, {0 $\bar{1}$ 1}, {111}, {1 $\bar{1}$ 1}, with other minor forms, to 2 cm; in divergent groups and cross-fiber veinlets.

**Physical Properties:** *Cleavage:* On {100}, perfect; on {011}, less perfect. *Hardness* = 2  
D(meas.) = 2.66 D(calc.) = 2.664

**Optical Properties:** Transparent to translucent. *Color:* Colorless to white. *Luster:* Vitreous, pearly on cleavages; silky in fibrous masses.

*Optical Class:* Biaxial (+). *Orientation:*  $X = b$ ;  $Y \wedge a = -2^\circ$ . *Dispersion:*  $r > v$ , perceptible.  
 $\alpha = 1.551(2)$   $\beta = [1.553]$   $\gamma = 1.621(2)$   $2V(\text{meas.}) = 37^\circ$

**Cell Data:** *Space Group:* *Aa*.  $a = 20.860(5)$   $b = 11.738(3)$   $c = 6.652(2)$   $\beta = 92.10(3)^\circ$   
 $Z = 8$

**X-ray Powder Pattern:** Kramer district, California, USA; nearly identical to *p*-veatchite.  
10.5 (100), 3.32 (35), 2.600 (25), 3.47 (20), 2.865 (9), 5.64 (6), 5.12 (6)

Chemistry:	(1)	(2)
B <sub>2</sub> O <sub>3</sub>	57.56	58.62
CaO	1.68	
SrO	30.50	31.73
H <sub>2</sub> O <sup>+</sup>	9.56	
H <sub>2</sub> O <sup>-</sup>	0.39	
H <sub>2</sub> O		9.65
Total	99.69	100.00

(1) Sterling mine, California, USA. (2) Sr<sub>2</sub>B<sub>11</sub>O<sub>16</sub>(OH)<sub>5</sub>•H<sub>2</sub>O.

**Polymorphism & Series:** Trimorphous with *p*-veatchite and veatchite-A.

**Occurrence:** Uncommon in evaporite borate deposits formed by volcanic activity.

**Association:** Howlite, colemanite (Sterling mine, California, USA).

**Distribution:** In the USA, in California, from the Sterling borax mine, Tick Canyon, near Lang, Los Angeles Co.; and in drillcore no. 5, Four Corner area, Kramer district, San Bernardino Co.; at the Billie mine, Furnace Creek district, Death Valley, Inyo Co. From the Penobsquis and Salt Springs evaporite deposits, near Sussex, New Brunswick, Canada. At the Inder borate deposit, Kazakhstan. Large crystals from Mustafakemalpassa, Bursa Province, Turkey.

**Name:** Honors John A. Veatch (1808–1870), American physician and geologist, who first detected boron in mineral waters in California, USA in the late 1800's.

**Type Material:** Harvard University, Cambridge, Massachusetts, 92944; National Museum of Natural History, Washington, D.C., USA, 105697.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 348–349. (2) Clark, J.R., M.E. Mrose, A. Perloff, and G. Burley (1959) Studies of borate minerals (VI): investigation of veatchite. *Amer. Mineral.*, 44, 1141–1149. (3) Clark, J.R. and M.E. Mrose (1960) Veatchite and *p*-veatchite. *Amer. Mineral.*, 45, 1221–1229. (4) Clark, J.R. and C.L. Christ (1971) Veatchite: crystal structure and correlations with *p*-veatchite. *Amer. Mineral.*, 56, 1934–1954.