## Bostwickite $CaMn_6^{3+}Si_3O_{16}\cdot 7H_2O$



**Crystal Data:** Orthorhombic (?). *Point Group:* n.d. As divergent sprays of bladed crystals, commonly composed of tiny microcrystals, to 250 $\mu$m; as radial aggregates and hemispherules of such crystals, to 3 mm.

**Physical Properties:** Hardness = ~1 D(meas.) = 2.93(10) D(calc.) = n.d.

**Optical Properties:** Semitransparent. *Color:* Dark brownish red. *Streak:* Brownish red. *Luster:* Vitreous to submetallic on prism surfaces.
*Optical Class:* Biaxial (–). *Pleochroism:* Strong; $X = Y$ = red-brown; $Z$ = yellow-brown. *Dispersion:* $r < v$, very strong. *Absorption:* $X = Y > Z$. $\alpha = 1.775(5)$ $\beta = 1.798(3)$ $\gamma = 1.800(3)$ 2V(meas.) = 25°

**Cell Data:** *Space Group:* n.d. Z = n.d.

**X-ray Powder Pattern:** Franklin, New Jersey, USA.
11.3 (100), 2.567 (40), 3.548 (30), 2.898 (30), 2.262 (25), 2.238 (25), 1.470 (25)

**Chemistry:**

| | (1) | (2) |
|---|---|---|
| $SiO_2$ | 20.1 | 21.56 |
| $Al_2O_3$ | 1.0 | |
| $Fe_2O_3$ | 0.5 | |
| $Mn_2O_3$ | 56.3 | 56.65 |
| $As_2O_5$ | 1.0 | |
| MgO | 0.9 | |
| CaO | 5.1 | 6.71 |
| $H_2O$ | [15.1] | 15.08 |
| Total | [100.0] | 100.00 |

(1) Franklin, New Jersey, USA; by electron microprobe, $H_2O$ by difference; corresponds to $(Ca_{0.76}Mg_{0.19})_{\Sigma=0.95}(Mn^{3+}_{5.97}Fe^{3+}_{0.05})_{\Sigma=6.02}(Si_{2.80}Al_{0.16}As^{5+}_{0.07})_{\Sigma=3.03}O_{16}\cdot 7.1H_2O$.
(2) $CaMn_6Si_3O_{16}\cdot 7H_2O$.

**Occurrence:** In a metamorphosed stratiform zinc deposit, on surfaces of ore and on secondary carbonate minerals.

**Association:** Franklinite, calcite, fluorite, willemite, kittatinnyite.

**Distribution:** From Franklin, Sussex Co., New Jersey, USA.

**Name:** For Richard C. Bostwick, collector of Franklin minerals and expert in mineral fluorescence.

**Type Material:** Harvard University, Cambridge, Massachusetts, 125617–125620; National Museum of Natural History, Washington, D.C., USA, C4222.

**References:** (1) Dunn, P.J. and P.B. Leavens (1983) Bostwickite, a new calcium manganese silicate hydrate from Franklin, New Jersey. Mineral. Mag., 47, 387–389. (2) (1984) Amer. Mineral., 69, 810 (abs. ref. 1).