Bostwickite

\[ \text{CaMn}^{3+}_6 \text{Si}_3 \text{O}_{16} \cdot 7\text{H}_2\text{O} \]

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

Physical Properties:  
Hardness = \( \sim 1 \)  
\( D(\text{meas.}) = 2.93(10) \)  
\( D(\text{calc.}) = \text{n.d.} \)

Optical Properties:  
Semitransparent.  
Color: Dark brownish red.  
Streak: Brownish red.  
Luster: Vitreous to submetallic on prism surfaces.  
Optical Class: Biaxial (\(-\)).  
Pleochroism: Strong; \( X = Y = \text{red-brown}; Z = \text{yellow-brown} \).  
Absorption: \( X = Y > Z \).  
\( \alpha = 1.775(5) \)  
\( \beta = 1.798(3) \)  
\( \gamma = 1.800(3) \)  
\( 2V(\text{meas.}) = 25^\circ \)

Cell Data:  
Space Group: n.d.  
\( Z = \text{n.d.} \)

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:  
\[
\begin{array}{ccc}
\text{SiO}_2 & 20.1 & 21.56 \\
\text{Al}_2\text{O}_3 & 1.0 & \\
\text{Fe}_2\text{O}_3 & 0.5 & \\
\text{Mn}_2\text{O}_3 & 56.3 & 56.65 \\
\text{As}_2\text{O}_5 & 1.0 & \\
\text{MgO} & 0.9 & \\
\text{CaO} & 5.1 & 6.71 \\
\text{H}_2\text{O} & [15.1] & 15.08 \\
\hline
\text{Total} & [100.0] & 100.00
\end{array}
\]

(1) Franklin, New Jersey, USA; by electron microprobe, \( \text{H}_2\text{O} \) by difference; corresponds to \( (\text{Ca}_{0.76}\text{Mg}_{0.19})\Sigma=0.95(\text{Mn}_{5.97}\text{Fe}_{0.03})\Sigma=6.02(\text{Si}_{2.80}\text{Al}_{0.16}\text{As}_{0.07})\Sigma=3.03\text{O}_{16} \cdot 7\text{H}_2\text{O} \).  
(2) \( \text{CaMn}_6\text{Si}_3\text{O}_{16} \cdot 7\text{H}_2\text{O} \).

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

Association: Franklinite, calcite, fluorite, willemite, kittatiniyite.

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:  