Tokyoite

\[ \text{Ba}_2\text{Mn}^{3+}(\text{VO}_4)_2(\text{OH}) \]

Crystal Data: Monoclinic.  \textit{Point Group: 2/m}.  As aggregates to 250 \( \mu \text{m} \) composed of irregular 15 \( \mu \text{m} \) grains.


Optical Class: n.d.  \( n(\text{calc.}) = 2.03 \)

Cell Data: Space Group: \( \text{P2}_1/\text{m} \) (by analogy to gamagarite).  \( a = 9.10(4) \)  \( b = 6.13(2) \)  \( c = 7.89(5) \)  \( \beta = 112.2(5)^\circ \)  \( Z = 2 \)

X-ray Powder Pattern: The Shiromaru mine, Okutama Town, Tokyo, Japan.
3.31(100), 2.80 (62), 2.71 (40), 3.46 (26), 3.08 (20), 2.90 (19), 2.16 (18)

Chemistry:

\[
\begin{array}{ll}
\text{V}_2\text{O}_5 & 31.77 \\
\text{SiO}_2 & 0.15 \\
\text{Al}_2\text{O}_3 & 0.07 \\
\text{Fe}_2\text{O}_3 & 2.33 \\
\text{Mn}_2\text{O}_3 & 11.27 \\
\text{CaO} & 0.07 \\
\text{BaO} & 51.91 \\
\text{SrO} & 0.22 \\
\text{Na}_2\text{O} & 0.13 \\
[\text{H}_2\text{O}] & 1.59 \\
\text{Total} & 99.51 \\
\end{array}
\]

(1) The Shiromaru mine, Okutama Town, Tokyo, Japan; average of 6 electron microprobe analyses, \( \text{H}_2\text{O} \) calculated by analogy to gamagarite, corresponds to \( (\text{Ba}_{1.92}\text{Na}_{0.02}\text{Sr}_{0.01}\text{Ca}_{0.01})_{\Sigma=1.96}(\text{Mn}^{3+}_{0.81}\text{Fe}^{3+}_{0.17}\text{Al}_{0.01})_{\Sigma=0.99}[(\text{V}_{1.99}\text{Si}_{0.01})\text{O}_7\text{Si}_{0.01})]_{(\text{OH})_{1.00}} \)

Mineral Group: Brackebuschite group.

Occurrence: From an outcrop, in an abandoned Mn deposit in brecciated braunite and in veinlets in chert blocks enclosed in sandstone in an accretionary complex.  Probably a primary mineral derived from the reaction of braunite with Ba- and V-bearing fluids.

Association: Braunite, hyalophane, tamaite.

Distribution: From the Shiromaru mine, Okutama Town, Tokyo, Japan.

Name: For the metropolitan area containing the first locality.

Type Material: National Science Museum, Tokyo, Japan (NSM-M 28569).