Manganvesuvianite \( \text{Ca}_{19}\text{Mn}^{3+}\text{Al}_{10}\text{Mg}_2\text{Si}_2\text{O}_{10}\text{Si}_2\text{O}_7\text{O}_9\text{O(OH)}_9 \)

Crystal Data: Tetragonal. *Point Group*: 6. As prismatic, often striated, crystals, to 1.5 cm, with \{100\} dominant, \{110\} minor, and \{101\} termination. *Twinning*: Merohedral \{110\}.


Cell Data: *Space Group*: \( P4/\text{nn} \). *a* = 15.575(2) \( c = 11.824 \)

X-ray Powder Pattern: n.d. Chemically zoned material precluded a good pattern. Similar to other vesuvianite group members.

Chemistry:

\[
\begin{align*}
\text{SiO}_2 & \quad 36.15 \\
\text{Al}_2\text{O}_3 & \quad 14.73 \\
\text{Fe}_2\text{O}_3 & \quad 1.12 \\
\text{Mn}_2\text{O}_3 & \quad 6.79 \\
\text{MgO} & \quad 2.35 \\
\text{CaO} & \quad 35.73 \\
\text{CuO} & \quad 0.02 \\
\text{SrO} & \quad 0.11 \\
\text{Na}_2\text{O} & \quad 0.03 \\
\text{F} & \quad 0.12 \\
\text{Cl} & \quad 0.01 \\
\text{H}_2\text{O} & \quad [2.67] \\
-\text{O} &= (\text{F}, \text{Cl}) & \quad 0.07 \\
\text{Total} & & \quad 99.76
\end{align*}
\]

(1) N'Chwaning II mine, South Africa; average electron microprobe analysis, \( \text{H}_2\text{O} \) calculated; corresponds to simplified formula \( \text{Ca}_{19}\text{Mn}^{3+}(\text{Al},\text{Mn}^{3+},\text{Fe}^{3+})_{10}(\text{Mg},\text{Mn}^{2+})_2\text{Si}_{18}\text{O}_{69}(\text{OH})_9 \).

Mineral Group: Vesuvianite group.

Occurrence: In calc-silicate lenses formed by hydrothermal alteration of primary sedimentary and low-grade metamorphic manganese ores.

Association: Grossular, xonotlite, calcite, serandite-pectolite, strontiopiemontite-tweddillite, mozartite, hydrogrossular, henritermierite.

Distribution: At the Wessels mine and N‘Chwaning II mine [TL], Kalahari manganese fields, South Africa.

Name: Prefix, *mangan*, indicates a *vesuvianite* group mineral with the five-coordinated (\( Y' \)) position occupied by Mn\(^{3+} \).

Type Material: Natural History Museum, Bern, Switzerland (NMBE 35474).