Reppiaite

\( \text{Mn}_5^{2+}(\text{VO}_4)_2(\text{OH})_4 \)

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**Crystal Data:** Monoclinic. *Point Group:* 2/m. As striated irregular grains, flattened on \{100\}, to 300 \( \mu \text{m} \); in fine-grained aggregates.

**Physical Properties:** Hardness = \( \sim 3 \) VHN = 90–110, 100 average (15 g load). \( D(\text{meas.}) = 3.92 \quad D(\text{calc.}) = 3.91 \)

**Optical Properties:** Transparent. *Color:* Red-orange. *Streak:* Yellow-orange. *Luster:* Vitreous. *Optical Class:* Biaxial (-). *Pleochroism:* Very weak; yellow-orange to deep orange. *Dispersion:* Medium. \( \alpha = 1.803(2) \quad (\alpha') \quad \beta = \text{n.d.} \quad \gamma = 1.810(5) \quad (\gamma') \quad 2V(\text{meas.}) = \text{Large} \)

**Cell Data:** *Space Group:* C2/m. \( a = 9.614(4) \quad b = 9.561(3) \quad c = 5.396(3) \quad \beta = 98.39(1)^\circ \)

\( Z = 2 \)

**X-ray Powder Pattern:** Gambatesa mine, Italy. 2.680 (VS), 4.76 (S), 3.00 (M), 2.656 (M), 2.155 (M), 1.565 (M), 1.510 (M)

**Chemistry:**

\[
\begin{array}{c|c|c}
\text{As}_2\text{O}_5 & 6.87 & (1) \\
\text{V}_2\text{O}_5 & 25.79 & 31.77 \\
\text{MnO} & 61.17 & 61.94 \\
\text{H}_2\text{O} & [6.17] & 6.29 \\
\hline
\text{Total} & [100.00] & 100.00
\end{array}
\]

(1) Gambatesa mine, Italy; by electron microprobe, average of ten analyses from two samples, total Mn as MnO, H\(_2\)O by difference; corresponding to Mn\(_5\text{.01}[\text{V}_0.82\text{As}_0.18]\Sigma=1.00\text{O}_4]_2(\text{OH})_3.98\cdot

(2) Mn\(_5\text{(VO}_4\text{)}_2(\text{OH})_4\cdot

**Occurrence:** A rare mineral, deposited from V–As-bearing hydrothermal solutions in fractures cutting manganiferous cherts.

**Association:** Hausmannite, tephroite, Mn–Ca carbonates.

**Distribution:** From the Gambatesa mine, near Reppia, Val Graveglia, Liguria, Italy.

**Name:** For Reppia, Italy, a village near the locality where the mineral was first found.

**Type Material:** University of Genoa, Genoa, Italy.