Manganosegelerite \((\text{Mn}^{2+}, \text{Ca})(\text{Mn}^{2+}, \text{Fe}^{2+}, \text{Mg})\text{Fe}^{3+} (\text{PO}_4)_2(\text{OH}) \cdot 4\text{H}_2\text{O}\)

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**Crystal Data:** Orthorhombic. \(\text{Point Group: } 2/m\ 2/m\ 2/m\). Subhedral prismatic crystals, to 0.05 mm, in granular aggregates.

**Physical Properties:** Cleavage: Imperfect on \{001\}. Hardness = 3–4 \(\text{D(meas.) = 2.76(3)}\ \text{D(calc.) = 2.74}\).

**Optical Properties:** Transparent to translucent. Color: Yellow to yellow-green. Streak: Yellow. Luster: Vitreous. Optical Class: Biaxial (+). Pleochroism: \(X = \text{yellow}; Z = \text{pale yellow}\). Orientation: \(X = c; Y = a; Z = b\). Dispersion: \(\alpha = 1.657(1)\ \beta = 1.668(1)\ \gamma = 1.691(2)\). \(2V(\text{meas.}) = 75(5)^\circ\ \text{2V(calc.) = 70}^\circ\).

**Cell Data:** Space Group: \([Pbca]\) (by analogy to overite). \(a = 14.89(1)\ \text{b = 18.79(1)}\ \text{c = 7.408(5)}\ \text{Z = 8}\).

**X-ray Powder Pattern:** Mt. Vasin-Myl’k, Kola Peninsula, Russia. 9.39 \(10\), 2.86 \(9\), 4.70 \(5\), 1.966 \(5\), 1.880 \(5\), 2.97 \(4\), 2.60 \(4\).

**Chemistry:**

\[
\begin{array}{ccc}
\text{P}_2\text{O}_5 & 33.21 \\
\text{Al}_2\text{O}_3 & 1.48 \\
\text{Fe}_2\text{O}_3 & 22.61 \\
\text{MnO} & 16.37 \\
\text{MgO} & 2.83 \\
\text{CaO} & 5.14 \\
\text{H}_2\text{O} & [18.36] \\
\text{Total} & [100.00]
\end{array}
\]

(1) Mt. Vasin-Myl’k, Kola Peninsula, Russia; by electron microprobe; total Fe as \(\text{Fe}_2\text{O}_3\), total Mn as \(\text{MnO}\), \(\text{H}_2\text{O}\) by difference, \(\text{Fe}^{2+}:\text{Fe}^{3+}\) for charge balance, \((\text{OH})^{1-}\) and \(\text{H}_2\text{O}\) confirmed by IR; then corresponding to \((\text{Mn}_{0.61}\text{Ca}_{0.39})\Sigma = 1.00(\text{Mn}_{0.38}\text{Fe}_{0.33}\text{Mg}_{0.30})\Sigma = 1.01(\text{Fe}_{0.88}\text{Al}_{0.12})\Sigma = 1.00
\text{PO}_4)2.00(\text{OH})_{1.02} \cdot 4.04\text{H}_2\text{O}\).

**Mineral Group:** Overite group.

**Occurrence:** In fractures in granite pegmatite.

**Association:** Mitridatite, lun’okite, eosphorite, kingsmountite, manganese gordonite.

**Distribution:** On Mt. Vasin-Myl’k, Voron’i massif, Kola Peninsula, Russia.

**Name:** As the manganese analog of segelerite.

**Type Material:** Mining Institute, St. Petersburg, 1592/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia.