Santaclaraite

\[ \text{CaMn}^{2+}_4 \text{Si}_5 \text{O}_{14} (\text{OH})_2 \cdot \text{H}_2 \text{O} \]

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Crystal Data:  Triclinic.  \( \text{Point Group: } \bar{1} \).  Rarely as thick prismatic crystals, to 1 cm.  As radiating lamellar aggregates of thin prismatic to tabular subhedral crystals, flattened on \{100\}.  In rough spherules, also as cross-vein prismatic to nearly fibrous crystals.  Twinning:  On \{100\}.

Physical Properties:  Cleavage:  Good on \{100\} and \{010\}.  Hardness = 6.5

\( \text{D(meas.)} = 3.31 \quad \text{D(calc.)} = 3.379 \)

Optical Properties:  Transparent.  Color:  Pale pink or moderate reddish orange.  Streak:  Pale pink.  Luster:  Vitreous.  Optical Class:  Biaxial (−).  Pleochroism:  In thick sections, weak; \( X = \text{very pale red; } Y = \text{pale red; } Z = \text{pale reddish brown. } \)

\( \alpha = 1.681(2) \quad \beta = 1.696(2) \quad \gamma = 1.708(2) \quad 2\text{V(meas.)} = 81(1)^\circ \)

Cell Data:  Space Group:  \( \text{Pt} \).  \( a = 9.738(2) \quad b = 9.970(1) \quad c = 7.603(1) \quad \alpha = 109.77(1)^\circ \quad \beta = 93.95(1)^\circ \quad \gamma = 104.97(2)^\circ \quad Z = 2 \)

X-ray Powder Pattern:  Santa Clara Co., California, USA.

\( 7.04 \text{ (100), 3.003 (84), 3.152 (80), 7.69 (63), 3.847 (57), 3.524 (39), 4.797 (38) } \)

Chemistry:

\[
\begin{align*}
\text{SiO}_2 & = 44.74 \\
\text{Al}_2\text{O}_3 & = 0.12 \\
\text{FeO} & = 0.09 \\
\text{MnO} & = 41.26 \\
\text{CoO} & = 0.06 \\
\text{NiO} & = 0.06 \\
\text{MgO} & = 0.31 \\
\text{CaO} & = 7.24 \\
\text{Na}_2\text{O} & = 0.12 \\
\text{H}_2\text{O} & = 5.28 \\
\text{Total} & = 99.28
\end{align*}
\]

(1) Santa Clara Co., California, USA; \( \text{H}_2\text{O} \) by microcoulometric methods; corresponds to \( \left( \text{Ca}_{0.87}\text{Na}_{0.03}\right)\Sigma = 0.90 \left( \text{Mn}^{2+}_{2.94}\text{Mg}_{0.05}\text{Fe}^{2+}_{0.01}\text{Ni}_{0.01}\text{Co}_{0.01}\right)\Sigma = 4.02 \left( \text{Si}_{5.04}\text{Al}_{0.02}\right)\Sigma = 5.06 \text{O}_{14.03} (\text{OH})_{1.97} \cdot \text{H}_2\text{O} \).

Occurrence:  As cross-fiber veins and irregular masses in manganese-oxide-stained chert and quartz.

Association:  Calcite, quartz, barite, harmotome, chalcopyrite, copper, howieite, kutnohorite, rhodochrosite, braunite.

Distribution:  From an unspecified manganese mine in the Diablo Range, Santa Clara Co., and the Buckeye mine, Stanislaus Co., California, USA.

Name:  For the occurrence in Santa Clara Co., California, USA.

Type Material:  National Museum of Natural History, Washington, D.C., USA.


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