Ranciéite

$(\text{Ca}, \text{Mn}^{2+})\text{Mn}^{4+}_4\text{O}_9 \cdot 3\text{H}_2\text{O}$

Crystal Data: Hexagonal. Point Group: n.d. As fine lamellar to polycrystalline aggregates; in stalactites and incrustations.


Chemistry:

<table>
<thead>
<tr>
<th>SiO$_2$</th>
<th>MnO$_2$</th>
<th>Al$_2$O$_3$</th>
<th>Fe$_2$O$_3$</th>
<th>MnO</th>
<th>CuO</th>
<th>MgO</th>
<th>CaO</th>
<th>Na$_2$O</th>
<th>K$_2$O</th>
<th>H$_2$O$^+$</th>
<th>H$_2$O$^-$</th>
<th>P$_2$O$_5$</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.62</td>
<td>70.80</td>
<td>0.12</td>
<td>9.20</td>
<td>3.31</td>
<td>0.02</td>
<td>1.35</td>
<td>2.30</td>
<td>75.04</td>
<td>0.61</td>
<td>0.12</td>
<td>0.26</td>
<td>0.06</td>
<td>100.59</td>
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<td>0.09</td>
<td>76.22</td>
<td>0.15</td>
<td>0.15</td>
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<td>8.10</td>
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</table>

(1) Rancié, France. (2) Oriente Province, Cuba; corresponding to $(\text{Ca}_{0.76}\text{Mn}_{0.22})\Sigma=0.98\text{Mn}^{4+}_4\text{Mn}_{4+}^{3+}\text{Mn}^{2+}$ calculated from site occupancy and charge balance considerations; corresponding to $(\text{Ca}_{0.76}\text{Mn}^{2+}_{0.22}\text{Al}_{0.06}\text{K}_{0.02})\Sigma=1.00(\text{Mn}^{4+}_{3.75}\text{Mn}^{3+}_{0.12}\text{Fe}^{3+}_{0.01})\Sigma=3.88\text{O}_9\cdot 3.86\text{H}_2\text{O}$.

Polymorphism & Series: Forms a series with takanelite.

Occurrence: A product of weathering or alteration of manganese deposits, commonly formed in limestone or in caves in limestone.

Association: Todorokite, calcite, “limonite”.

Distribution: Some well-authenticated localities are: in France, at Rancié, near Viedessos, Ariège; at Prader, Pyrénées-Oriental; at Montmirat, Lozève; and elsewhere. From near Newbiggin, Teesdale, Durham, England. At Barranco de Maspalomas, Grand Canary Island, Spain. In a cave at Kefali, near Itea, Greece. From Monte Gelato, near Mazzano Romano, Latiun, Italy. In the Sheliya deposit, Ural Mountains, Russia. At Winterberg, Harz Mountains, Germany. From Oriente Province, Cuba. In the USA, from Batesville, Independence Co., Arkansas; in Mammoth Cave, Kentucky; at the Anson Betts mine, Plainfield, Hampshire Co., Massachusetts; in Paxton’s Cave, near Bolling Springs, Alleghany Co., Virginia; at Courtland, Cochise Co., and Ajo, Pima Co., Arizona.

Name: For its first-noted occurrence at Rancié, France.


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