Baileychlore \((\text{Zn, Fe}^{2+}, \text{Al, Mg})_6(\text{Si, Al})_4\text{O}_{10}(\text{OH})_8\)

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Crystal Data: Triclinic. Point Group: \(\overline{1}\) or 1. As fine-grained transverse fibers of very small size.

Physical Properties: Cleavage: Perfect micaceous. Hardness = \(< 5\) D(meas.) = 3.18(2) D(calc.) = 3.195

Optical Properties: Transparent. Color: Green, zoned. Optical Class: Biaxial. Pleochroism: Weak; green to yellow-green. \(\alpha = 1.582\) \(\beta = \text{n.d.}\) \(\gamma = 1.614\) \(2V(\text{meas.}) = \text{n.d.}\)

Cell Data: Space Group: \(\text{CT}\) or \(C1\) (uncertainty due to random stacking of chlorite layers). \(a = 5.346(3)\) \(b = 9.257(4)\) \(c = 14.40(7)\) \(\beta = 97.12(5)^\circ\) \(Z = 2\)

X-ray Powder Pattern: Red Dome deposit, Australia. 7.14 (100), 14.3 (90), 1.542 (60), 2.660 (50), 3.573 (40), 2.450 (35b), 4.600 (30)

Chemistry:

<table>
<thead>
<tr>
<th>SiO₂</th>
<th>Al₂O₃</th>
<th>FeO</th>
<th>MnO</th>
<th>ZnO</th>
<th>MgO</th>
<th>CaO</th>
<th>H₂O</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.0</td>
<td>12.4</td>
<td>12.9</td>
<td>0.15</td>
<td>30.5</td>
<td>4.6</td>
<td>1.0</td>
<td>n.d.</td>
</tr>
</tbody>
</table>

(1) Red Dome deposit, Australia; by electron microprobe; excluding CaO, corresponds to \((\text{Zn}_{2.50}\text{Fe}_{1.20}\text{Al}_{1.17}\text{Mg}_{0.76}\text{Mn}_{0.01})\Sigma=5.64(\text{Si}_{3.55}\text{Al}_{0.45})\Sigma=4.00\text{O}_{10}(\text{OH})_8\).

Mineral Group: Chlorite group.

Occurrence: As rims on colloform calcite veins, within a strongly oxidized collapse karst-brecchia containing skarn clasts.

Association: Andesine, garnet, vesuvianite, zincian chamosite, goethite, hematite, chalcocite, copper, malachite, calcite.

Distribution: From the Red Dome deposit, 15 km west-northwest of Chillagoe, Queensland, Australia.

Name: For Professor Sturges W. Bailey (1919–1994), Department of Geology and Geophysics, University of Wisconsin, Madison, Wisconsin, USA.

Type Material: Geological Museum, University of Wisconsin, Madison, Wisconsin, 6000/1; National Museum of Natural History, Washington, D.C., USA, 164430; South Australian Museum, Adelaide, Australia, 13592.

References: (1) Rule, A.C. and F. Radke (1988) Baileychlore, the Zn end member of the trioctahedral chlorite series. Amer. Mineral., 73, 135–139.