**Waterhouseite**

Crystal Data: Monoclinic.  Point Group: 2/m. As divergent sprays of bladed crystals to 1.0 mm elongated along [001]. Pseudo-orthorhombic crystals display {100} (dominant), {010}, {011}, and {001}. Twinning: Contact twinning on (100).

Physical Properties: Cleavage: Perfect on (100) and probable on (001). Fracture: Splintery to conchoidal. Tenacity: Brittle. Hardness = 4  D(meas.) = 3.55(5)  D(calc.) = 3.59


Cell Data: Space Group: P2₁/c.  a = 11.364(2)  b = 5.570(1)  c = 10.455(2)  β = 96.61(3)°  Z = 2


3.621 (100), 4.436 (70), 3.069 (50), 2.941(40), 2.780 (35), 2.890 (20), 2.842 (20)

Chemistry:

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>MnO</td>
<td>69.70</td>
</tr>
<tr>
<td>ZnO</td>
<td>0.02</td>
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<tr>
<td>P₂O₅</td>
<td>17.37</td>
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<tr>
<td>As₂O₅</td>
<td>1.09</td>
</tr>
<tr>
<td>V₂O₅</td>
<td>0.50</td>
</tr>
<tr>
<td>H₂O</td>
<td>[9.49]</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>98.17</td>
</tr>
</tbody>
</table>

(1) Iron Monarch mine, Middleback Ranges, Iron Knob, South Australia; average of 7 electron microprobe analyses supplemented by Raman spectroscopy, H₂O calculated from structure analysis; corresponds to Mn₇.25[(P₁.81As₀.07V₀.04)O₄]₁.₉₂(OH)₇.₈₁O₅.₅₁.

Occurrence: In cavities in the carbonate-rich beds of a Precambrian banded iron formation.

Association: Shigaite, gatehouseite, seamanite, rhodochrosite, barite, hausmannite, hematite.

Distribution: From the 130-meter level on the eastern side of the Iron Monarch mine, Middleback Ranges, Iron Knob, South Australia.

Name: Honors Frederick George Waterhouse (1815-1898), first Director of the South Australian Museum (Adelaide), in recognition of his contribution to the preservation of the natural history of South Australia, and in celebration of the continuing work of the Waterhouse Club in support of the South Australian Museum.

Type Material: The South Australian Museum, Adelaide, Australia (SAM 28408 and 28409).