Holfertite \( \text{U}^{6+}\text{Ti}^{4+}\text{Ca}_{0.25}\text{O}_{7.5}(\text{H}_2\text{O})_3 \) or \( \text{U}^{6+}\text{Ti}^{4+}\text{Ca}_{0.25}\text{O}_{7.17}(\text{OH})_{0.67}(\text{H}_2\text{O})_3 \)

Crystal Data: Hexagonal.  
Point Group: 3.  
As hollow prismatic crystals, to 5 mm, in isolation or as sprays.

Physical Properties: Cleavage: Perfect on {110}.  
Fracture: Uneven to conchoidal.  
Tenacity: Brittle.  
Hardness = 4  
D(meas.) = > 4.22  
D(calc.) = 4.22-4.26

Optical Properties: Transparent to translucent.  
Color: Canary-yellow to orange-yellow, colorless in transmitted light.  
Streak: Pale yellow.  
Luster: Adamantine.

Optical Class: Uniaxial (+).  
\( \alpha = 1.815(8) \)  
\( \epsilon = 1.910(8) \)

Cell Data: Space Group: \( P3 \).  
\( a = 10.824\)  
\( c = 7.549\)  
\( Z = 3 \)

X-ray Powder Pattern:  
Starvation Canyon, Thomas Range, Utah, USA.  
4.60 (10), 2.90 (8), 1.87 (3), 1.747 (3), 1.211 (3), 3.05 (2), 1.531 (2).

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
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<tbody>
<tr>
<td>\text{CaO}</td>
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<tr>
<td>\text{UO}_3</td>
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<td>\text{TiO}_2</td>
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<tr>
<td>\text{Fe}_2\text{O}_3</td>
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<tr>
<td>\text{K}_2\text{O}</td>
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<tr>
<td>\text{H}_2\text{O}</td>
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<td>8.27</td>
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<tr>
<td>Total</td>
<td>101.34</td>
<td>99.22</td>
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</tbody>
</table>

(1) Starvation Canyon, Thomas Range, Utah, USA; average of 10 electron microprobe analyses supplemented by spectroscopy, \( \text{H}_2\text{O} \) by LOI; corresponds to \( \text{U}^{6+}\text{Ti}^{4+}\text{Ca}_{0.34}\text{Fe}^{3+}_{0.04}\text{K}_{0.09}\text{O}_{7.5}(\text{H}_2\text{O})_3 \) or \( \text{U}^{6+}\text{Ti}^{4+}\text{Ca}_{0.34}\text{Fe}^{3+}_{0.04}\text{K}_{0.09}\text{O}_{7.17}(\text{OH})_{0.67}(\text{H}_2\text{O})_3 \).

(2) Starvation Canyon, Thomas Range, Utah, USA; average of 14 electron microprobe analyses supplemented by spectroscopy, \( \text{H}_2\text{O} \) by LOI; corresponds to \( \text{U}^{6+}\text{Ti}^{4+}_{0.97}\text{Ca}_{0.27}\text{Fe}^{3+}_{0.04}\text{K}_{0.09}\text{O}_{7.5}(\text{H}_2\text{O})_3 \) or \( \text{U}^{6+}\text{Ti}^{4+}_{0.97}\text{Ca}_{0.27}\text{Fe}^{3+}_{0.04}\text{K}_{0.09}\text{O}_{7.17}(\text{OH})_{0.67}(\text{H}_2\text{O})_3 \).

Occurrence: A pneumatolytic phase in rhyolite.

Association: Hematite, bixbyte, fluorite, topaz, beryl, calcite.

Distribution: From Starvation (formerly Searle) Canyon, Thomas Range, Utah, USA.

Name: Honors John W. Holfert (b. 1949) for his contributions to understanding the mineral occurrences in the Thomas Range, Utah, USA.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (#91374).