Tschernichite

Crystal Data: Tetragonal. Point Group: 4/m 2/m 2/m. Steep dipyramidal {302}, terminated by {001}, striated || {001}, to 1 cm. Also as hemispherical to drusy aggregates. Twinning: Common, on {302}, {304}, and {101}, contact and multiple.

Physical Properties: Fracture: Conchoidal. Tenacity: Brittle. Hardness = 4.5 D(meas.) = 2.02 D(calc.) = 2.12 May show pale yellow fluorescence under SW and LW UV.


X-ray Powder Pattern: Goble, Oregon, USA. 4.03 (100), 11.6 (32), 3.156 (16), 2.114 (16), 3.062 (15), 4.22 (14), 12.5 (10)

Chemistry:

<table>
<thead>
<tr>
<th>SiO₂</th>
<th>54.09</th>
<th>65.77</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al₂O₃</td>
<td>15.43</td>
<td>14.44</td>
</tr>
<tr>
<td>FeO</td>
<td>0.26</td>
<td>n.d.</td>
</tr>
<tr>
<td>MgO</td>
<td>0.51</td>
<td>n.d.</td>
</tr>
<tr>
<td>CaO</td>
<td>8.27</td>
<td>6.58</td>
</tr>
<tr>
<td>Na₂O</td>
<td>0.22</td>
<td>0.00</td>
</tr>
<tr>
<td>K₂O</td>
<td>n.d.</td>
<td>0.06</td>
</tr>
<tr>
<td>H₂O⁺</td>
<td>22.7</td>
<td>[13.15]</td>
</tr>
<tr>
<td>Total</td>
<td>101.48</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Goble, Oregon, USA; by electron microprobe, H₂O by loss of weight on heating; corresponds to (Ca₀.₉₇Mg₀.₀₈Na₀.₀₅Fe₀.₀₂)ₒ=₁.₁₂Al₂.₀₄Si₅.₉₅O₁₆ •7.₉₆H₂O. (2) Do.; by electron microprobe, H₂O by difference; corresponds to (Ca₀.₇₃Na₀.₁₁K₀.₀₂Fe₀.₀₂)ₒ=₀.₈₈Al₁.₆₀Si₆.₃₅O₁₆ •3.₉₈H₂O

Mineral Group: Zeolite group.

Occurrence: In vesicles in an olivine basalt, formed by hydrothermal action.

Association: Zeolites, apophyllite, copper, quartz, aragonite, smectite.

Distribution: At Neer Road pit, Goble, Columbia Co., Oregon, USA.

Name: Honoring Rudy Warren Tschernich (1945– ), amateur mineralogist specializing in zeolites, of Snohomish, Washington, USA.

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