**Kochite**  
CaMnZrNa₃Ti(Si₂O₇)₂(OF)F₂

**Crystal Data**: Triclinic. *Point Group*: ̅1̅. As lath-shaped to acicular grains, elongate along [010], in parallel to subparallel aggregates to 1.0 mm.

Hardness = 5 (by analogy to rosenbuschite)  
D(meas.) = 3.32(1)  
D(calc.) = 3.31

*Optical Class*: Biaxial (+).  
α = 1.684(2)  
β = 1.695(4)  
γ = 1.718(2)  
2V(meas.) = 73(2)°  
2V(calc.) = 70°  

**Cell Data**:  
*Space Group*: P̅1.  
a = 10.032(2)  
b = 11.333(2)  
c = 7.202(1)  
α = 90.192(4)°  
β = 100.334(5)°  
γ = 111.551(4)°  
Z = 2

**X-ray Powder Pattern**: Hvide Ryg, Werner Bjerge range, eastern coast of Greenland.  
2.908 (100), 2.600 (80), 3.028 (60), 1.868 (60), 1.670 (50), 3.951 (30), 2.462 (20)

**Chemistry**:  
(1)  

<table>
<thead>
<tr>
<th>Ion</th>
<th>Formula</th>
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<tbody>
<tr>
<td>Na₂O</td>
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<tr>
<td>CaO</td>
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<td>SrO</td>
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<tr>
<td>La₂O₃</td>
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</tbody>
</table>

(1) Hvide Ryg, Werner Bjerge range, eastern coast of Greenland; average of four electron microprobe analyses supplemented by IR spectroscopy; corresponds to (Na₀.₉₃Sr₀.₀₇)₂₋₀.₈₆  
(Na₁.₁₈Ca₀.₇₂)₂₋₀.₁₆(Ca₁.₇₇Na₀.₃₀)₂₋₀.₀₀(Mn₀.₃₃Ca₀.₄₁Y₀.₀₂Ce₀.₀₂La₀.₀₁)₂₋₀.₃₉(Zr₀.₇₀Fe₀.₁₂Ca₀.₁₈  
Hf₀.₀₀₃)₂₋₀.₈₆(Nb₀.₁₀Zr₀.₀₅Al₀.₀₂V₀.₀₁)₂₋₀.₉₈(Si₂O₇)₂F₂(O₁₂₈₀F₀.₇₄)₂₋₁.₉₄

**Mineral Group**: Seidozerite supergroup, rinkite group.

**Occurrence**: An accessory phase in nepheline syenite in an alkaline complex.

**Association**: Nepheline, alkali feldspar, lāvenite.

**Distribution**: In a loose block found between the Sirius Glacier and the northern side of Hvide Ryg, Werner Bjerge range, eastern coast of Greenland.

**Name**: Honors Danish geologist Lauge Koch (1892-1964), who mapped Werner Bjerge.

**Type Material**: Geological Museum, University of Copenhagen, Denmark (GM 2002.94).