Mcnearite  
NaCa₅(AsO₄)(AsO₃OH)₄•4H₂O

Crystal Data: Triclinic.  
Point Group: 1 or 1.  
As bundles of fibers, to 2 mm, in radial aggregates.  
Twinning: Lamellar || elongation.

Physical Properties:  
Cleavage: Perfect || elongation.  
Tenacity: Very brittle.  
Hardness = n.d.  
D(meas.) = 2.60 (low due to porosity of fibrous aggregates).  
D(calc.) = 2.85  
Fluoresces violet under LW UV.

Optical Properties:  
Translucent to transparent.  
Color: White; colorless in transmitted light.  
Luster: Pearly.  
Optical Class: Biaxial (+).  
Orientation: Y ∧ c = 6°–22°; positive elongation.  
Dispersion: Moderately strong.  
α = 1.559  β = 1.562  γ = [1.572]  
2V(meas.) = 60°

Cell Data:  
Space Group: P1 or P1.  
a = 13.50  b = 14.10  c = 6.95  α = 90°  β = 92°  
γ = 119°  Z = 2

X-ray Powder Pattern:  
12.33 (100), 3.92 (60), 3.122 (60), 6.94 (50), 2.748 (40), 4.40 (30), 3.400 (25)

Chemistry:  
<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
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<tbody>
<tr>
<td>As₂O₅</td>
<td>59.19</td>
<td>57.80</td>
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<tr>
<td>CaO</td>
<td>25.71</td>
<td>28.21</td>
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<tr>
<td>Na₂O</td>
<td>3.40</td>
<td>3.12</td>
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<tr>
<td>H₂O</td>
<td>11.32</td>
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<tr>
<td>Total</td>
<td>[99.62]</td>
<td>100.00</td>
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</tbody>
</table>

(1) Sainte-Marie-aux-Mines, France; by AA, original total given as 100.62%, H₂O by TGA, average of two analyses; corresponding to H₃.₉₁Na₁.₆₉Ca₄.₉₉(AsO₄)₅.₀₀•4.₃₂H₂O.  
(2) NaCa₅(AsO₄)(HAsO₃OH)₄•4H₂O.

Occurrence:  
A secondary mineral in the oxidized zone of an arsenic-bearing deposit.

Association:  
Picropharmacolite, pharmacolite, guérinite, haidingerite.

Distribution:  

Name:  
Honors Elizabeth McNear, mineralogist and crystallographer, University of Geneva, Geneva, Switzerland.

Type Material:  
Natural History Museum, Geneva, Switzerland, 435/40.

References:  