Mohrite \((\text{NH}_4)_2\text{Fe}^{2+}(\text{SO}_4)_2\cdot6\text{H}_2\text{O}\)

### Crystal Data:
- **Point Group:** 2/m. As subhedral crystals, to 0.2 mm, and irregular laminae.

### Physical Properties:
- **Cleavage:** Perfect on \{102\}; distinct on \{010\}. Hardness = n.d.
- **Density:** D(meas.) = 1.800–1.862  D(calc.) = 1.805–1.870
- **Solubility:** Soluble in \(\text{H}_2\text{O}\).

### Optical Properties:
- **Semitransparent.**
- **Color:** Pale green to colorless.
- **Luster:** Vitreous.
- **Optical Class:** Biaxial (+).
- \(\alpha = 1.480–1.486\)  \(\beta = \text{n.d.}\)  \(\gamma = 1.486–1.497\)  2V(meas.) = 65°–75°

### Cell Data:
- **Space Group:** \(P2_1/c\) (synthetic).
- **Lattice Parameters:** \(a = 6.24(1)\)  \(b = 12.65(2)\)  \(c = 9.32(2)\)  \(\beta = 106.8(1)^\circ\)  \(Z = 2\)

### X-ray Powder Pattern:
- Travale, Italy.

### Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\text{SO}_4)</td>
<td>41.05</td>
<td>42.69</td>
</tr>
<tr>
<td>(\text{FeO})</td>
<td>17.49</td>
<td>9.86</td>
</tr>
<tr>
<td>(\text{MnO})</td>
<td>0.11</td>
<td>0.34</td>
</tr>
<tr>
<td>(\text{MgO})</td>
<td>0.56</td>
<td>5.08</td>
</tr>
<tr>
<td>((\text{NH}_4)_2\text{O})</td>
<td>13.13</td>
<td>13.40</td>
</tr>
<tr>
<td>(\text{H}_2\text{O})</td>
<td>27.10</td>
<td>28.69</td>
</tr>
<tr>
<td>insol.</td>
<td>0.16</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Total 99.60  100.21

(1) Travale, Italy; corresponds to \((\text{NH}_4)_{1.99}(\text{Fe}_{0.96}\text{Mg}_{0.06}\text{Mn}_{0.01})\Sigma=1.03(\text{SO}_4)_{2.03}\cdot5.95\text{H}_2\text{O}.

(2) Do.; corresponds to \((\text{NH}_4)_{1.95}(\text{Fe}_{0.52}\text{Mg}_{0.48}\text{Mn}_{0.02})\Sigma=1.02(\text{SO}_4)_{2.01}\cdot6.01\text{H}_2\text{O}.

### Occurrence:
- In boriferous fumaroles and geysers.

### Association:
- n.d.

### Distribution:
- From Travale, near Montieri, Val di Cecina, Tuscany, Italy.

### Name:
- To honor Karl Friedrich Mohr (1806–1879), German analytical chemist, for whom the synthetic compound has long been named.

### Type Material:
- University of Florence, Florence, Italy, 16817/G.

### References: