Mejillonesite  

**NaMg₂(PO₃OH)(PO₄)(OH)·H₂O₂**

**Crystal Data:** Orthorhombic.  *Point Group: 2/m 2/m 2/m.* As elongated, thick tabular, prismatic crystals to 6 mm; usually in radiating aggregates. Crystals display {100}, {hk0}, {h0l}, and {0kl}.

**Physical Properties:** *Cleavage:* Perfect on {100}, good on {010} and {001}. *Fracture:* Stepped. *Tenacity:* Brittle. *Hardness:* 4  

D(meas.) = 2.36(1)  D(calc.) = 2.367


α = 1.507(2)  β = 1.531(2)  γ = 1.531(2)  2V(meas.) = 15(10)°  2V(calc.) = 0°  *Orientation:* X = a, Z = elongation. *Dispersion:* r > v, medium.

**Cell Data:** *Space Group:* Pbca.  

*a* = 16.295(1)  *b* = 13.009(2)  *c* = 8.434(1)  *Z* = 8

**X-ray Powder Pattern:** Cerro Mejillones, Antofagasta, II Region, Chile.  

8.095 (100), 2.157 (19), 2.706 (12), 6.846 (9), 2.153 (9), 6.470 (8), 3.317 (5)

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Na₂O</td>
<td>9.19</td>
<td>9.79</td>
</tr>
<tr>
<td>MgO</td>
<td>26.82</td>
<td>25.46</td>
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<tr>
<td>P₂O₅</td>
<td>46.87</td>
<td>44.83</td>
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<tr>
<td>H₂O</td>
<td>19.19</td>
<td>19.92</td>
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<tr>
<td>Total</td>
<td>101.88</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Cerro Mejillones, Antofagasta, II Region, Chile; average of 5 electron microprobe analyses, supplemented by IR spectroscopy. H₂O by the Alimarin method; corresponds to Na₀.₉₃Mg₂.₀₆(PO₃OH)₁.₆₀(PO₄)₁.₀₆(OH)₀.₈₆·0.₉₅H₂O₂.  

(2) NaMg₂(PO₃OH)(PO₄)(OH)·H₂O₂.

**Occurrence:** Formed at the contact between granite and what is now a fine-grained, completely altered siliceous layer at the base of a Pliocene (ca. 2.5 Ma) coastal bird guano deposit.

**Association:** Bobierrite, opal, clinoptilolite-Na, clinoptilolite-K, gypsum.

**Distribution:** From the north slope of Cerro Mejillones, Antofagasta, II Region, Chile.

**Name:** For the locality that provided the first specimen.

**Type Material:** Museum of Geology, University of São Paulo, SP, Brazil (DR712) and the A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (4043/1).


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