Mejillonesite $NaMg_2(PO_3OH)(PO_4)(OH)\cdot H_5O_2$

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}, {*hk*0}, {*h*0*l*}, and {0*kl*}.

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

Optical Properties: Transparent. *Color*: Colorless. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Biaxial (-). 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:	(1)	(2)
Na_2O	9.19	9.79
MgO	26.82	25.46
P_2O_5	46.87	44.83
H_2O	19 .	19.92
Total	101.88	100.00

(1) Cerro Mejillones, Antofagasta, II Region, Chile; average of 5 electron microprobe analyses, supplemented by IR spectroscopy, H_2O by the Alimarin method; corresponds to $Na_{0.93}Mg_{2.08}(PO_3OH)_{1.00}(PO_4)_{1.06}(OH)_{0.86}\cdot 0.95H_5O_2$. (2) $NaMg_2(PO_3OH)(PO_4)(OH)\cdot H_5O_2$.

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).

References: (1) Atencio, D., N.V. Chukanov, F. Nestola, T. Witzke, J.M.V. Coutinho, A.E. Zadov, R.R. Contreira Filho, and G. Färber (2012) Mejillonesite, a new acid sodium, magnesium phosphate mineral, from Mejillones, Antofagasta, Chile. Amer. Mineral., 97, 19-25.