

Mejillonesite

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

Optical Properties: Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (-). $\alpha = 1.507(2)$ $\beta = 1.531(2)$ $\gamma = 1.531(2)$ $2V(\text{meas.}) = 15(10)^\circ$ $2V(\text{calc.}) = 0^\circ$ *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 ₂ O	9.19	9.79
MgO	26.82	25.46
P ₂ O ₅	46.87	44.83
<u>H₂O</u>	<u>19</u>	<u>19.92</u>
Total	101.88	100.00

(1) Cerro Mejillones, Antofagasta, II Region, Chile; average of 5 electron microprobe analyses, supplemented by IR spectroscopy, H₂O by the Alimarin method; corresponds to Na_{0.93}Mg_{2.08}(PO₃OH)_{1.00}(PO₄)_{1.06}(OH)_{0.86}·0.95H₅O₂. (2) NaMg₂(PO₃OH)(PO₄)(OH)·H₅O₂.

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: Bobierite, 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.