Artinite $Mg_2(CO_3)(OH)_2 \cdot 3H_2O$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Typically acicular along [010], to 2.5 cm, forming cross-fiber veinlets, botyroidal crusts, and spherical or bow tie aggregates of divergent crystals.

Physical Properties: *Cleavage:* {100}, perfect; {001}, good. *Tenacity:* Brittle. Hardness = 2.5 D(meas.) = 2.02–2.03 D(calc.) = 2.047

Optical Properties: Transparent. *Color:* White; colorless in transmitted light. *Streak:* White. *Luster:* Vitreous, silky to satiny in aggregates. *Optical Class:* Biaxial (–). *Orientation:* $Y = b$; $Z \wedge c = 30°$. $\alpha = 1.488(1)$ $\beta = 1.534(1)$ $\gamma = 1.556(1)$ 2V(meas.) = 70°

Cell Data: *Space Group:* $C2/m$. $a = 16.561(5)$ $b = 6.298(3)$ $c = 6.220(3)$ $\beta = 99°9(10)'$ Z = 1

X-ray Powder Pattern: Locality not stated. (ICDD 6-484).
2.736 (100), 5.34 (65), 3.69 (50), 2.210 (40), 8.18 (30), 2.672 (20), 2.271 (20)

Chemistry:

	(1)	(2)
CO_2	22.36	22.38
MgO	40.97	40.98
H_2O	36.62	36.64
Total	99.95	100.00

(1) Monte Ramazzo, Italy. (2) $Mg_2(CO_3)(OH)_2 \cdot 3H_2O$.

Occurrence: A low-temperature mineral in weathered or altered ultramafic rocks, typically serpentinites, likely occurring worldwide.

Association: Brucite, hydromagnesite, pyroaurite, chrysotile, aragonite, calcite, dolomite, magnesite.

Distribution: Well-studied or good specimen material, from: in Italy, in Lombardy, from the Franscia asbestos mine, at Torre Santa Maria and Rocca Castellaccio, Val Lanterna, all in Val Malenco; at Emarese and Cogne, Val d'Aosta, Piedmont; from Viu, near Fubina, Val di Lanzo; and on Mont Ramazzo, north of Borzoli, Liguria. From Kraubath, Styria, Austria. Near Javornica, Bulgaria. In the USA, in California, from northwest of Coalinga, Fresno Co. and into San Benito Co., as fine examples at the Clear Creek mine, west of San Benito Mountain, and elsewhere in the New Idria district; at the Gabbs mine, Gabbs district, Nye Co., Nevada; from Spring Street, Staten Island, New York; at Signal Hill, Hoboken, Hudson Co., New Jersey; in the Belvidere Mountain quarry, Orleans Co., Vermont. In Japan, from Nakauri, Aichi Prefecture, at Hirotani, Fukuoka Prefecture, and along the Utonai River, Hokkaido. From the Ijim massif, Sayan Mountains, Siberia, Russia.

Name: Honors Professor Ettore Artini (1866–1928), Italian mineralogist, University of Milan and Director of the Natural History Museum, Milan, Italy.

Type Material: Natural History Museum, Milan, Italy, 13215, 13217, 22182, 22191.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 263–264. (2) de Wolff, P.M. (1952) The crystal structure of artinite, $Mg_2(OH)_2CO_3 \cdot 3H_2O$. Acta Cryst., 5, 286–287. (3) Jagodzinski, H. Kristallstruktur und Fehlordnung des Artinits $Mg_2[CO_3(OH)_2].3H_2O$. (1965) Tschermaks Mineral. Petrog. Mitt., 10, 297–330 (in German with English abs.). (4) Akao, M. and S. Iwai (1977) The hydrogen bonding of artinite. Acta Cryst., 33, 3951–3953.