

Brucite**Mg(OH)₂**

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Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$. Crystals tabular {0001}, to 19 cm, in platy or foliated masses and rosettes; also fibrous, to 50 cm; granular, massive.

Physical Properties: *Cleavage:* {0001}, perfect. *Tenacity:* Sectile; separable plates are flexible, fibers are elastic. Hardness = 2.5 D(meas.) = 2.39 D(calc.) = 2.368 Pyroelectric.

Optical Properties: Transparent. *Color:* White, pale green, blue, gray; honey-yellow to brownish red and deep brown in manganoan varieties; colorless in transmitted light.

Streak: White. *Luster:* Waxy, pearly on cleavage surfaces.

Optical Class: Uniaxial (+); anomalously biaxial. $\omega = 1.56\text{--}1.59$ $\epsilon = 1.58\text{--}1.60$ 2V(meas.) = Small.

Cell Data: *Space Group:* $P\bar{3}m1$. $a = 3.142(1)$ $c = 4.766(2)$
Z = 1

X-ray Powder Pattern: Synthetic.

2.365 (100), 4.77 (90), 1.794 (55), 1.573 (35), 1.494 (18), 1.373 (16), 1.310 (12)

Chemistry:	(1)	(2)	(3)
Fe ₂ O ₃	0.10	1.95	
FeO		9.57	
MnO	0.84		
MgO	68.29	60.33	69.11
H ₂ O	30.74	28.60	30.89
Total	99.97	100.45	100.00

(1) Wood's Chrome mine, Pennsylvania, USA; corresponds to (Mg_{0.99}Fe_{0.01})_{Σ=1.00}(OH)₂.

(2) Asbestos, Canada; after deduction of Fe₂O₃ impurity, corresponds to (Mg_{0.93}Fe_{0.08}²⁺)_{Σ=1.01}(OH)₂. (3) Mg(OH)₂.

Mineral Group: Brucite group.

Occurrence: A common alteration of periclase in marble; a low-temperature hydrothermal vein mineral in metamorphic limestones and chlorite schists; formed during serpentinization of dunites.

Association: Calcite, aragonite, dolomite, magnesite, hydromagnesite, artinite, talc, chrysotile.

Distribution: Many localities, but rarely in crystalline masses. In the USA, at Hoboken, Hudson Co., New Jersey; large crystals from Wood's Chrome mine, near Texas, Lancaster Co., Pennsylvania; at the Tilly Foster mine, Brewster, Putnam Co., New York; a large deposit near Gabbs, Gabbs district, Nye Co., Nevada; at the Crestmore quarry, Riverside Co., California. In Canada, at Asbestos and Wakefield, Quebec. From Mt. Vesuvius, Campania, and at Teulada, Sardinia, Italy. On Unst, Shetland Islands, and at Camas Mòr, Isle of Muck, Scotland. At Långban and Nordmark, Värmland, Sweden. From Asbest, Ural Mountains, Russia. Fine crystals in the Ethyl mine, Mutorashanga, Zimbabwe. From Phalaborwa, Transvaal, South Africa.

Name: For Archibald Bruce (1777–1818), physician and early American mineralogist, Professor at the College of Physicians and Surgeons (later Columbia University), New York, New York, USA, who first described the species.

Type Material: The Natural History Museum, London, England, 1911,730.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 636–639. (2) Deer, W.A., R.A. Howie, and J. Zussman (1962) Rock-forming minerals, v. 5, non-silicates, 90–92. (3) Catti, M., G. Ferraris, S. Hull, and A. Pavese (1995) Static compression and H disorder in brucite, Mg(OH)₂, to 11 GPa: a powder neutron diffraction study. Phys. Chem. Minerals, 22, 200–206. (4) (1956) NBS Circ. 539, 6, 30.

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