Brucite

Crystal Data: Hexagonal. Point Group: 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 manganese varieties; colorless in transmitted light. Streak: White. Luster: Waxy, pearly on cleavage surfaces. Optical Class: Uniaxial (+); anomalously biaxial. \( \omega = 1.56–1.59 \) \( \epsilon = 1.58–1.60 \) 2V(meas.) = Small.

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

\[
\begin{align*}
\text{Fe}_2\text{O}_3 & \quad 0.10 & \quad 1.95 & \quad 3.05 \\
\text{FeO} & \quad 9.57 & \quad & \\
\text{MnO} & \quad 0.84 & \quad & \\
\text{MgO} & \quad 68.29 & \quad 60.33 & \quad 69.11 \\
\text{H}_2\text{O} & \quad 30.74 & \quad 28.60 & \quad 30.89 \\
\text{Total} & \quad 99.97 & \quad 100.45 & \quad 100.00
\end{align*}
\]

(1) Wood’s Chrome mine, Pennsylvania, USA; corresponds to \((\text{Mg}_{0.99}\text{Fe}_{0.01})_{\Sigma=1.00}\text{(OH)}_2\).
(2) Asbestos, Canada; after deduction of \(\text{Fe}_2\text{O}_3\) impurity, corresponds to \((\text{Mg}_{0.93}\text{Fe}^{2+}_{0.08})_{\Sigma=1.01}\text{(OH)}_2\).
(3) \text{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, arthinite, talc, chrysotile.


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.


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