

**Crystal Data:** Hexagonal. *Point Group:*  $\bar{3} 2/m$ . Uncommon as crystals, to 30 cm, with large {10 $\bar{1}$ 1} or {01 $\bar{1}$ 2}, modified by {10 $\bar{1}$ 0}, {11 $\bar{2}$ 0}, or tabular on {0001}. Typically earthy, chalky, porcelaneous, fibrous, coarse to fine granular, compact massive.

**Physical Properties:** *Cleavage:* On {10 $\bar{1}$ 1}, perfect. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 3.5–4.5 D(meas.) = 3.00(2) D(calc.) = 3.010 May exhibit pale green to pale blue fluorescence and phosphorescence under UV; triboluminescent.

**Optical Properties:** Transparent to translucent. *Color:* Colorless, white, pale yellow, pale brown, faintly pink, lilac-rose; colorless in transmitted light. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Uniaxial (-). *Dispersion:* Very strong. *Absorption:*  $O > E$ , if colored.  $\omega = 1.700$   $\epsilon = 1.509$

**Cell Data:** *Space Group:*  $R\bar{3}c$ .  $a = 4.6632$   $c = 15.015$   $Z = 6$

**X-ray Powder Pattern:** Synthetic.

2.742 (100), 2.102 (45), 1.700 (35), 2.503 (18), 1.939 (12), 1.338 (8), 0.9134 (8)

Chemistry:	(1)	(2)
CO <sub>2</sub>	[51.74]	52.20
FeO	0.60	
MnO	0.67	
MgO	47.09	47.80
CaO	0.07	
Total	[100.17]	100.00

(1) Brumado, Brazil; CO<sub>2</sub> calculated for stoichiometry; corresponds to (Mg<sub>0.98</sub>Fe<sub>0.01</sub>Mn<sub>0.01</sub>)<sub>Σ=1.00</sub>CO<sub>3</sub>. (2) MgCO<sub>3</sub>.

**Polymorphism & Series:** Forms two series, with gaspéite and with siderite.

**Mineral Group:** Calcite group.

**Occurrence:** A primary mineral in igneous or sedimentary rocks; formed by metamorphism or alteration of serpentine and peridotite; uncommon in marine evaporites and hydrothermal veins; rare in carbonatites.

**Association:** Talc, antigorite, “chlorite”, dolomite, calcite.

**Distribution:** An ore of magnesium and used to prepare refractories, with world reserves estimated at about 10 billion t. Some well-studied localities include: from Magnesia, Greece. At Baldissero Canavese, Piedmont, Italy. Large crystals from Sunk, near Trieben, Styria, and Radenthein, Carinthia, Austria. At Snarum, Norway. Fine large crystals from several mines around Brumado, Bahia, Brazil. In Canada, at the Mt. Brussilof mine, near Radium, British Columbia, and in the Del Oro deposits, Timmins, Ontario. In the USA, in a large deposit near Gabbs, Gabbs district, Nye Co., Nevada; from a number of commercial deposits in California, as in the Red Mountain district, Stanislaus and Santa Clara Co.; from southwest of Chewelah, Stevens Co., Washington. Immense deposits in the Liaoning district, Liaoning Province, China. Numerous other occurrences are known.

**Name:** For *magnesium* in the composition.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 162–166. (2) Chang, L.L.Y., R.A. Howie, and J. Zussman (1996) Rock-forming minerals, (2nd edition), v. 5B, non-silicates, 136–149. (3) Markgraf, S.A. and R.J. Reeder (1985) High-temperature structure refinements of calcite and magnesite. *Amer. Mineral.*, 70, 590–600. (4) (1957) NBS Circ. 539, 7, 28.

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