

Crystal Data: Hexagonal. *Point Group:* $\bar{3}2/m$. Commonly crystallized, typically rhombohedral {10 $\bar{1}$ 1} to steep scalenohedral {21 $\bar{3}$ 1}, prismatic {10 $\bar{1}$ 0}, {0001}, with additional minor forms, to 25 cm; fibrous, stalactitic, spherulitic, cleavable, fine-grained massive. *Twinning:* Uncommon on {01 $\bar{1}$ 2}, lamellar; rare on {0001}.

Physical Properties: *Cleavage:* Perfect on {10 $\bar{1}$ 1}. *Fracture:* Uneven to conchoidal. *Tenacity:* Brittle. Hardness = 3.75–4.25 D(meas.) = 3.96(1) D(calc.) = 3.932

Optical Properties: Translucent. *Color:* Yellowish brown, brown; white, ash-gray, yellowish gray, pale green; colorless, yellow, yellow-brown in transmitted light. *Streak:* White. *Luster:* Vitreous, may be pearly or silky. *Optical Class:* Uniaxial (-). *Dispersion:* Strong. $\omega = 1.875$ $\epsilon = 1.633$

Cell Data: *Space Group:* $R\bar{3}c$. $a = 4.6916$ – 4.6935 $c = 15.3796$ – 15.3860 $Z = 6$

X-ray Powder Pattern: Ivigtut, Greenland.
2.795 (100), 1.7315 (35), 1.7382 (30), 3.593 (25), 2.346 (20), 2.134 (20), 1.9650 (20)

Chemistry:	(1)	(2)
CO ₂	38.19	37.99
FeO	61.08	62.01
MnO	1.12	
MgO	0.13	
CaO	0.10	
Total	100.62	100.00

(1) Camborne, England. (2) FeCO₃.

Polymorphism & Series: Forms three series, with magnesite, with rhodochrosite, and with smithsonite.

Mineral Group: Calcite group.

Occurrence: A common component of bedded sedimentary iron ores and metamorphic iron formations; in hydrothermal metallic veins; rarely in granite and nepheline syenite pegmatites; in carbonatites; authigenic, and in concretions.

Association: Quartz, barite, fluorite, pyrite.

Distribution: Many noted localities worldwide, including: in Germany, from Freiberg and Neudorf, Harz Mountains, and in the Siegerland district, Westphalia. In Austria, on the Erzberg, near Eisenerz, Styria, and Hüttenberg-Lölling, Carinthia. From Allevard, Isère, France. In England, from many mines in Cornwall, as at the Great Onslow Consols mine, St. Breward, Wheal Maudlin, Lanlivrey, Dolcoath mine, Camborne; from the Virtuous Lady mine, Tavistock, Devon. At Panasqueira, Portugal. From Ivigtut, Greenland. Very large crystals at Mont Saint-Hilaire, Quebec, Canada. In the USA, from Bisbee, Cochise Co., and in the Antler mine, Mohave Co., Arizona; at Leadville, Lake Co., Colorado. From Mosojllacta, Colavi, Bolivia, large crystals. In Brazil, in the Morro Velho gold mine, Nova Lima, Minas Gerais, and at Pedreira Ataleia, Governador Valadares.

Name: From the Greek *sideros*, for *iron* in the composition.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 167–171. (2) Deer, W.A., R.A. Howie, and J. Zussman (1962) Rock-forming minerals, v. 5, non-silicates, 272–277; Chang, L.L.Y., R.A. Howie, and J. Zussman (1996) Rock-forming minerals, (2nd edition), v. 5B, non-silicates, 163–177. (3) Effenberger, H., K. Mereiter, and J. Zemmann (1981) Crystal structure refinements of magnesite, rhodochrosite, siderite, smithsonite, and dolomite, with discussion of some aspects of the stereochemistry of calcite type carbonates. *Zeits. Krist.*, 156, 233–243. (4) (1978) NBS Mono. 25, 15.

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