

Ankerite

Ca(Fe²⁺, Mg, Mn²⁺)(CO₃)₂

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Crystal Data: Hexagonal. *Point Group:* $\bar{3}$. Crystals rhombohedral {10 $\bar{1}$ 1}, with curved or saddle-shaped faces; prismatic to tabular {11 $\bar{2}$ 0} with {0001}, or pseudo-octahedral with equal development of {10 $\bar{1}$ 1} and {0001}, to 5 cm; columnar, stalactitic, granular, massive. *Twining:* Simple twins with {0001}, {10 $\bar{1}$ 0}, or {11 $\bar{2}$ 0} as twin plane.

Physical Properties: *Cleavage:* On {10 $\bar{1}$ 1}, perfect. *Fracture:* Subconchoidal. *Tenacity:* Brittle. Hardness = 3.5–4 D(meas.) = 2.93–3.10 D(calc.) = 3.11

Optical Properties: Translucent to transparent. *Color:* Brown, yellow, white; colorless in transmitted light. *Streak:* White. *Luster:* Vitreous to pearly. *Optical Class:* Uniaxial (–). *Dispersion:* Strong. $\omega = 1.690$ – 1.750 $\epsilon = 1.510$ – 1.548

Cell Data: *Space Group:* $R\bar{3}$. $a = 4.8312(2)$ $c = 16.1663(3)$ $Z = 3$

X-ray Powder Pattern: Minntac mine, Mountain Iron, St. Louis Co., Minnesota, USA. (ICDD 41-586).

2.906 (100), 1.7974 (6), 2.203 (5), 1.818 (5), 2.024 (4), 3.714 (3), 2.414 (3)

Chemistry:	(1)	(1)
	CO ₂ [42.30]	MgO 7.73
	FeO 17.56	CaO 27.49
	MnO 4.92	Total [100.00]

(1) Sokoman Formation, Canada; by electron microprobe, total Fe as FeO, total Mn as MnO, CO₂ by difference; corresponding to Ca_{0.98}(Fe_{0.49}Mg_{0.38}Mn_{0.14}) $_{\Sigma=1.01}$ (CO₃)_{2.00}.

Polymorphism & Series: Forms two series, with dolomite and with kutnohorite.

Mineral Group: Dolomite group.

Occurrence: Formed in low-grade metamorphosed ironstones and sedimentary banded iron formations; in carbonatites; authigenic, diagenetic, or the product of hydrothermal alteration of carbonate sediments and in hydrothermal sulfide veins.

Association: Siderite, dolomite.

Distribution: Many localities, but only a few have fine crystals or abundant material; regarded as a variety of dolomite by many older authors. In Austria, in Styria, from the Erzberg, Eisenerz, and at Gollrad; Steiermark. In the Brosso mine, northwest of Ivrea, Torino, Italy. From the Oldham area, Lancashire, England. In the USA, at the Roxbury iron mine, Litchfield Co., Connecticut; in the Jeffrey quarry, near Little Rock, Pulaski Co., Arkansas; from the Eagle mine, Gilman district, Eagle Co., and many other places in Colorado. At Muzo, Boyacá Province, Colombia. Large crystals from the Tui mine, North Island, New Zealand. Abundant worldwide in iron formation, with studied material from: the Mesabi Range, Minnesota, USA. In the Sokoman Iron Formation, Howells River area, Quebec, Canada. From the Dales Gorge Member, Hamersley Group, Western Australia.

Name: Honors Professor Matthias Joseph Anker (1772–1843), Austrian mineralogist.

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