

Crystal Data: Orthorhombic. *Point Group:* *mm2*. As striated prismatic [001] crystals, to 2.5 cm, typically flattened on {100} and displaying many forms, including {010}, {100}, {120}, {101}, {131}, {011}, {111}, {121}. In divergent aggregates, rarely fibrous; as massive coatings.

Physical Properties: *Cleavage:* On {010}, perfect; on {100} and {101}, imperfect. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 2.5–3 D(meas.) = 5.6–5.76 D(calc.) = 5.69 Piezoelectric.

Optical Properties: Translucent to transparent. *Color:* Deep verdigris-green, blue-green; pale bluish green in transmitted light. *Streak:* Pale green. *Luster:* Vitreous to resinous. *Optical Class:* Biaxial (–). *Pleochroism:* Weak. *Orientation:* *X* = *c*; *Y* = *a*; *Z* = *b*. *Dispersion:* *r* < *v*, barely perceptible. $\alpha = 1.818(3)$ $\beta = 1.866(3)$ $\gamma = 1.909(3)$ $2V(\text{meas.}) = \sim 85^\circ$

Cell Data: *Space Group:* *Pnm2*₁. *a* = 7.146(3) *b* = 20.089(7) *c* = 6.560(5) *Z* = 2

X-ray Powder Pattern: Red Gill mine, England. 3.139 (100), 4.69 (57), 3.031 (55), 1.861 (55), 2.752 (43), 3.152 (36), 2.226 (36)

Chemistry:	(1)	(2)
SO ₃	14.15	14.89
CO ₂	3.16	2.73
PbO	69.18	69.17
CuO	9.73	9.86
H ₂ O	3.78	3.35
Total	[100.00]	100.00

(1) Challacollo, Chile; recalculated to 100% after deduction of insoluble 2.31%; corresponds to Pb_{5.06}Cu_{2.00}(SO₄)_{2.90}(CO₃)_{1.18}(OH)_{5.96}. (2) Pb₅Cu₂(SO₄)₃(CO₃)(OH)₆.

Occurrence: An uncommon secondary mineral in the oxidized portions of Pb–Cu deposits.

Association: Cerussite, anglesite, leadhillite, brochantite, linarite, azurite, malachite.

Distribution: Widely distributed, although fine specimens are uncommon. In Scotland, from Leadhills, Lanarkshire, and Wanlockhead, Dumfriesshire. At Red Gill and other mines, Caldbeck Fells, Cumbria, England. In the Preobrazhensky mine, Beresovsk, near Yekaterinburg (Sverdlovsk), Middle Ural Mountains, Russia. Large crystals from Tchah Milleh, Anarak, Iran. In the USA, in Arizona, large crystals in rich masses from the Mammoth-St. Anthony mine, Tiger, Pinal Co., in the Rowley mine, near Theba, Maricopa Co., and elsewhere; from the Mex-Tex mine, near Bingham, Hansonburg district, Socorro Co., New Mexico; large crystals from the Blue Bell mine, near Baker, San Bernardino Co., at the Chance mine, Chidago Canyon, Mono Co., and from Cerro Gordo, Inyo Co., California. At Challacollo, Tarapacá, Chile. From Paddy's River mine, Australian Capital Territory, Australia.

Name: From the Latin *Caledonia*, the Roman name for the Highlands of Scotland, the first known locality.

Type Material: Natural History Museum, Paris, France.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 630–632. (2) Giacovazzo, C., S. Menchetti, and F. Scordari (1973) The crystal structure of caledonite, Cu₂Pb₅(SO₄)₃CO₃(OH)₆. *Acta Cryst.*, 29, 1986–1990. (3) Giacovazzo, C., S. Menchetti, and F. Scordari (1976) X-ray powder data for caledonite. *Mineral. Mag.*, 40, 536.