

Sphaerocobaltite

CoCO₃

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Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$. Crystals uncommon, rhombohedral {10 $\bar{1}1$ }, flat discoidal {0001}, modified by {10 $\bar{1}0$ }, to 5 mm; commonly compact radiated, concentric, spherical, massive, and in crusts. *Twinning:* Observed.

Physical Properties: *Cleavage:* [On {10 $\bar{1}1$ }] (by analogy to the calcite group). Hardness = 4 D(meas.) = 4.13 D(calc.) = 4.214

Optical Properties: Translucent. *Color:* Deep rose-red, red, may be surficially altered to gray, brown, or velvet-black. *Streak:* Peach-blossom-red. *Luster:* Vitreous.

Optical Class: Uniaxial (-). *Pleochroism:* *O* = red-violet; *E* = rose-red. $\omega = 1.855(5)$
 $\epsilon = 1.60(1)$

Cell Data: *Space Group:* $R\bar{3}c$. $a = 4.659$ $c = 14.957$ $Z = 6$

X-ray Powder Pattern: Synthetic.

2.743 (100), 3.551 (40), 1.702 (30), 1.697 (25), 2.330 (20), 2.112 (20), 1.948 (20)

Chemistry:

	(1)	(2)
CO ₂	36.36	37.00
CoO	61.75	63.00
CaO	1.89	
Total	[100.00]	100.00

(1) Schneeberg, Germany; recalculated to 100% from an original total of 99.94% after deduction of Fe₂O₃ 3.41%, H₂O 1.22%. (2) CoCO₃.

Mineral Group: Calcite group.

Occurrence: A rare accessory mineral in hydrothermal cobalt-bearing mineral deposits.

Association: Roselite, erythrite, annabergite (Schneeberg, Germany); cobaltian calcite, cobaltian dolomite (Congo).

Distribution: From Schneeberg, Saxony, Germany. At Libiola, near Casarza, and in the Valle del Neva, Liguria, Italy. From Zemo-Svanetia, Georgia. Found in a number of mines in Katanga Province, Congo (Shaba Province, Zaire), including Kambove; in the Musonoi and Kamoto mines, near Kolwezi; from Kabolela; Mupine; at the Kirilabomwe mine; from Konkola; very large crystals from the Kakanda mine. At the Aghbar (Arhbar) mine, Bou Azzer district, Morocco. In the Cameron area, Coconino Co., Arizona, USA. From Boleo, Baja California, Mexico. At the Mt. Cobalt mine, 140 km south of Cloncurry, Queensland, Australia.

Name: From the Greek for *sphere* and *cobalt* in its composition.

Type Material: Mining Academy, Freiberg, Germany, 15177.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 175–176. (2) Pertlik, F. (1986) Structures of hydrothermally synthesized cobalt(II) carbonate and nickel(II) carbonate. *Acta Cryst.*, C42, 4–5. (3) (1960) NBS Circ. 539, 10, 24.