

Crystal Data: Monoclinic. *Point Group:* 2/m. As rosette-like aggregates, to 2 mm, tabular crystals are elongate along [010] to 0.3 mm.

Physical Properties: *Cleavage:* Good on {001}. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 4.5 D(meas.) = n.d. D(calc.) = 5.31 Soluble in warm dilute HCl.

Optical Properties: Transparent. *Color:* Brown to yellow. *Streak:* Light brown. *Luster:* Adamantine.

Optical Class: Biaxial (+). α (calc.) = 1.92 β = 1.94(1) γ = 1.98(2) 2V(meas.) = 75(5)^o
Orientation: Y = b, X \wedge c = 15^o (in acute β). *Pleochroism:* Strong, X = light brown, Y = red-brown, Z = yellow.

Cell Data: *Space Group:* C2/m. $a = 9.097(2)$ $b = 6.313(2)$ $c = 7.555(3)$ $\beta = 115.08(2)^{\circ}$ Z = 2

X-ray Powder Pattern: Saxony, Germany.

3.243 (100), 4.462 (96), 4.656 (87), 3.010 (58), 2.868 (50), 2.733 (47), 2.538 (40)

Chemistry:	(1)
NiO	5.20
CoO	9.10
ZnO	0.52
PbO	34.23
Al ₂ O ₃	0.29
Fe ₂ O ₃	8.47
P ₂ O ₅	0.06
As ₂ O ₅	36.49
SO ₃	0.09
<u>H₂O</u>	<u>[4.65]</u>
Total	99.10

(1) Saxony, Germany; average electron microprobe analysis, H₂O calculated; corresponds to Pb_{0.97}(Co_{0.77}Fe_{0.67}Ni_{0.44}Zn_{0.04}Al_{0.04}) $\Sigma=1.96$ (AsO₄)_{2.01}[(H₂O)_{1.32}(OH)_{0.64}] $\Sigma=1.96$.

Mineral Group: Tsumcorite-group.

Occurrence: In the oxidation zone of polymetallic ore deposits.

Association: Quartz, mawbyite, cobalthotharmeyerite, galena, arseniosiderite, plumbogummitte.

Distribution: In dump material from the Am Roten Berg mine, 4.8 km southwest of Scheeberg, Saxony, Germany.

Name: The prefix, *cobalt*, indicates the cobalt analog of *tsumcorite*.

Type Material: Freiberg University of Mining and Technology, Saxony, Germany.

References: (1) Krause, W., H. Effenberger, H.-J. Bernhardt, and M. Martin (2001) Cobalittsumcorite and nickellotharmeyerite, two new minerals from Schneeberg, Germany: description and crystal structure. N. Jb. Mineral. Mh., 2001, 558-576. (2) (2002) Amer. Mineral., 87, 996 (abs. ref. 1).