Cobalttsumcorite $PbCo_2(AsO_4)_2 \cdot 2H_2O$

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)°
Orientation: $Y = b$, $X \wedge c = 15°$ (in acute β). *Pleochroism*: Strong, X = light brown, Y = red-brown, Z = yellow.

Cell Data: *Space Group*: *C*2/*m*. $a = 9.097(2)$ $b = 6.313(2)$ $c = 7.555(3)$ $\beta = 115.08(2)°$ $Z = 2$

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_2O_3	0.29
Fe_2O_3	8.47
P_2O_5	0.06
As_2O_5	36.49
SO_3	0.09
H_2O	[4.65]
Total	99.10

(1) Saxony, Germany; average electron microprobe analysis, H_2O calculated; corresponds to to $Pb_{0.97}(Co_{0.77}Fe_{0.67}Ni_{0.44}Zn_{0.04}Al_{0.04})_{\Sigma=1.96}(AsO_4)_{2.01}[(H_2O)_{1.32}(OH)_{0.64}]_{\Sigma=1.96}$.

Mineral Group: Tsumcorite-group.

Occurrence: In the oxidation zone of polymetallic ore deposits.

Association: Quartz, mawbyite, cobaltlotharmeyerite, galena, arseniosiderite, plumbogummite.

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) Cobalttsumcorite 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).