

Crystal Data: Monoclinic. *Point Group:* 2/*m*. As stalactites and crusts of minute crystals.

Physical Properties: *Cleavage:* On {001}, perfect; on {110}, fair. Hardness = 2
D(meas.) = 1.96 D(calc.) = 1.942 Soluble in H₂O; easily dehydrates to the hexahydrate.

Optical Properties: Translucent. *Color:* Rose-red, flesh-red; in transmitted light, pale rose-red to colorless. *Luster:* Vitreous.

Optical Class: Biaxial (-). *Orientation:* $Y = b$; $Z \wedge c = 29^\circ 18'$. $\alpha = 1.475\text{--}1.477$
 $\beta = 1.482\text{--}1.483$ $\gamma = 1.488\text{--}1.489$ $2V(\text{meas.}) = 88^\circ 01'$

Cell Data: *Space Group:* $P2_1/c$ (synthetic). $a = 14.040$ $b = 6.495$ $c = 10.923$
 $\beta = 105.27^\circ$ $Z = 4$

X-ray Powder Pattern: Synthetic. (ICDD 16-487).

4.87 (100), 3.76 (75), 4.82 (55), 2.725 (25), 3.71 (20), 4.02 (14), 3.25 (14)

Chemistry:

	(1)	(2)
P ₂ O ₅	29.05	28.48
CoO	19.91	26.66
MgO	3.86	
H ₂ O	46.83	44.86
Total	99.65	100.00

(1) Bieber, Germany. (2) CoSO₄•7H₂O.

Mineral Group: Melanterite group.

Occurrence: An uncommon oxidation product of cobalt-bearing sulfide–arsenides.

Association: Erythrite, annabergite, pharmacolite, cobaltite, linnaeite.

Distribution: In Germany, from Bieber, near Hanau, Hesse; at Siegen, Westphalia; from Wittichen, Black Forest. At Leogang, and in the Rauris Valley, Salzburg, Austria. In the Penberthy Croft mine, St. Hilary, and at Wheal Alfred, Phillack, Cornwall, England. From Minas de Riotintó, Huelva Province, Spain. At Chalanches, Isère, France. In the Dome Rock copper mine, South Australia. From the Copper King mine, Lomagundi district, Zimbabwe. At Island Mountain, Trinity Co., California; from Ajo, Pima Co., Arizona; and in the Dolly prospect, Emery Co., Utah, USA. From Tres Puntos, near Copiapó, Atacama, Chile.

Name: For its first-noted occurrence at Bieber, Germany.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 505–507.