Metakirchheimerite  \( \text{Co(UO}_2\text{)}_2(\text{AsO}_4\text{)}_2\cdot8\text{H}_2\text{O} \)

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Crystal Data:  Tetragonal.  Point Group:  n.d.  As square tabular crystals, to 50 \( \mu \text{m}. \)

Physical Properties:  Cleavage:  Perfect on \{001\}; good on \{010\}.  Hardness = 2–2.5

Optical Properties:  Transparent to translucent.  Color:  Pale rose to flesh-pink; colorless in transmitted light.  Luster:  Pearly on \{001\}.  Optical Class:  Uniaxial (–), anomalously biaxial (–).  \( \omega = 1.644(2) \quad \epsilon = 1.617(2) \)
2V(meas.) = 0°–20°

Cell Data:  Space Group:  n.d.  \( a = 6.98 \quad c = 16.93 \quad Z = [2] \)

X-ray Powder Pattern:  Sophia mine, Germany; indistinguishable from metakahlerite.
8.78 (10), 3.57 (10), 5.08 (6), 4.30 (6), 3.01 (6), 3.42 (5), 2.52 (5)

Chemistry:  (1) Sophia mine, Germany; no quantitative analysis has been performed, qualitatively major Co, U, As and minor Fe, Ni were confirmed by microchemical analysis.

Mineral Group:  Meta-autunite group.

Occurrence:  A very rare secondary mineral formed in the oxidized zone of a U–As deposit.

Association:  Metakahlerite, nováčekite, metaheinrichite, erythrite, uraninite.

Distribution:  From the dump of the Sophia mine, near Wittichen, Black Forest, Germany.

Name:  The prefix meta indicates membership of this species in the meta-autunite group; the name honors Professor Franz Waldemar Kirchheimer (1911– ), former Director of the Geological Survey of Baden-Württemberg, Germany.

Type Material:  n.d.