

Chadwickite

Crystal Data: Tetragonal. *Point Group:* n.d. As earthy and scaly crusts of grains to 20 μ m that rarely exhibit a rectangular or square tabular (001)face.

Physical Properties: *Cleavage:* Perfect on {001}. *Fracture:* Uneven. *Tenacity:* n.d. *Hardness* = 2
D(meas.) = n.d. D(calc.) = 4.86 Nonfluorescent.

Optical Properties: Partly transparent. *Color:* Yellow. *Streak:* Yellow. *Luster:* Dull.
Optical Class: Uniaxial (-). $\epsilon = 1.750$ $\omega = 1.845$ *Pleochroism:* E = colorless, O = yellow.

Cell Data: *Space Group:* n.d. $a = 11.00(1)$ $c = 15.96(2)$ $Z = 14$

X-ray Powder Pattern: Sophia mine, near Wittichen, Baden-Württemberg, Germany.
4.95 (100), 5.58 (80), 3.33 (80), 4.40 (60), 3.03 (60), 2.91 (50)

Chemistry:	(1)
UO ₃	73.0
As ₂ O ₃	25.5
<u>H₂O</u>	<u>1.5</u>
Total	100.0

(1) Sophia mine, near Wittichen, Baden-Württemberg, Germany; average electron microprobe analysis, H₂O by difference; corresponding to U_{1.03}As_{1.04}H_{0.67}O₅.

Occurrence: A secondary mineral in a uranium deposit.

Association: Uraninite, metakahlerite, abernathyite, erythrite, pitticite.

Distribution: From the dump of the Sophia mine, near Wittichen, central Black Forest, Baden-Württemberg, Germany.

Name: Honors Sir James *Chadwick* (1891-1974), English Nobel Laureate in physics for his proof of the existence of neutrons.

Type Material: Natural Science Museum, Stuttgart and the University of Stuttgart, Germany.

References: (1) Walenta, K. (1998) Chadwickite, a new uranyl arsenite from Wittichen in the Black Forest. *Aufschluss*, 49, 253-257 (in German, English abs.). (2) (1999) *Amer. Mineral.*, 84, 1195 (abs. ref. 1).