## Chudobaite $(Mg,Zn)_5(AsO_4)_2(AsO_3OH)_2 \cdot 10H_2O$



**Crystal Data:** Triclinic. *Point Group:* $\overline{1}$. Crystals equant, to 5 mm, showing prominent {100}, {010}, {001}, with half-a-dozen additional modifying forms.

**Physical Properties:** *Cleavage:* On {010}, very good; {100}, good. Hardness = 2.5–3 D(meas.) = 2.94 D(calc.) = [2.93]

**Optical Properties:** Transparent. *Color:* Rose, white, colorless. *Luster:* Good [*sic*]. *Optical Class:* Biaxial (–). *Orientation:* $Z \wedge c = -24°$ on {010}; $Z \wedge c = 11°$ on {100}. $\alpha = 1.583$ $\beta = \sim 1.608$ $\gamma = 1.633$ 2V(meas.) = 79°

**Cell Data:** *Space Group:* $P\overline{1}$. $a = 7.944(1)$ $b = 10.691(1)$ $c = 6.770(1)$ $\alpha = 80.97(1)°$ $\beta = 84.20(1)°$ $\gamma = 81.85(1)°$ Z = 1

**X-ray Powder Pattern:** Tsumeb, Namibia.
10.16 (10), 2.979 (9), 3.440 (8), 3.273 (8), 2.730 (7), 3.859 (5), 3.746 (5)

**Chemistry:**

| | (1) | (2) |
|---|---|---|
| $As_2O_5$ | 49.7 | 50.13 |
| MnO | 2.0 | |
| CuO | 0.2 | |
| ZnO | 11.5 | 12.43 |
| MgO | 12.0 | 15.82 |
| CaO | 1.0 | |
| $Na_2O$ | 5.0 | |
| $K_2O$ | 2.0 | |
| $H_2O$ | 17.0 | 21.62 |
| Total | 100.4 | 100.00 |

(1) Tsumeb, Namibia. (2) $(Mg,Zn)_5(AsO_4)_2(AsO_3OH)_2 \cdot 10H_2O$ with Mg:Zn = 3.4:1.6.

**Occurrence:** In a deep oxidation zone of a dolostone-hosted hydrothermal polymetallic ore deposit.

**Association:** Conichalcite, cuprian adamite, zincian olivenite, ferrilotharmeyerite, chalcocite.

**Distribution:** From Tsumeb, Namibia.

**Name:** To honor Dr. Karl Franz Chudoba (1898–1976), Professor of Mineralogy, University of Bonn, Bonn, Germany.

**Type Material:** National School of Mines, Paris, France; National Museum of Natural History, Washington, D.C., USA, 162628.

**References:** (1) Strunz, H. (1960) Chudobait, ein neues Mineral von Tsumeb. Neues Jahrb. Mineral., Monatsh., 1–7 (in German with English abs.). (2) (1960) Amer. Mineral., 45, 1130 (abs. ref. 1). (3) Dorner, R. and K. Weber (1976) Die Kristallstruktur von Chudobait, $(Mg,Zn)_5H_2[AsO_4]_4 \cdot 10H_2O$. Naturwiss., 63, 243 (in German). (4) Graeser, S., H. Schwander, R. Bianchi, T. Pilati, and C.M. Gramaccioli (1989) Geigerite, the Mn analogue of chudobaite: its description and crystal structure. Amer. Mineral., 74, 676–684.