Ottemannite Sn_2S_3

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. As small laths. *Twinning:* Commonly twinned.

Physical Properties: Hardness = ∼2 VHN = n.d. D(meas.) = 4.87 (synthetic). D(calc.) = 4.806

Optical Properties: Opaque. *Color:* In polished section, gray with orange-brown internal reflections. *Luster:* Metallic. *Pleochroism:* Weak. *Anisotropism:* Strong.
R_1–R_2: n.d.

Cell Data: *Space Group: Pnam.* a = 8.79(3) $b = 14.02(5)$ $c = 3.74(1)$ Z = 4

X-ray Powder Pattern: Synthetic.
4.131 (100), 5.495 (75), 2.670 (45), 7.003 (40), 2.747 (35), 3.740 (35), 3.257 (30)

Chemistry: Composition determined by identity of X-ray powder pattern with synthetic material.

Occurrence: In zones of oxidation or secondary enrichment in hydrothermal tin deposits.

Association: Stannite, cassiterite, herzenbergite, berndtite.

Distribution: In Bolivia, from Cerro Rico, Potosí [TL] and at the Maria-Teresa mine, near Huari, between Oruro and Uyuni. From the Stiepelmann mine, near Arandis, Namibia.

Name: To honor Joachim Ottemann (1914–), German mineralogist, Heidelberg, Germany.

Type Material: National Museum of Natural History, Washington, D.C., USA, 114486, C5354.

References: (1) Moh, G.H. and F. Berndt (1964) Two new natural tin sulfides, Sn_2S_3 and SnS_2. Neues Jahrb. Mineral., Monatsh., 94–95. (2) (1965) Amer. Mineral., 50, 2107 (abs. ref. 1). (3) Moh, G.H. (1966) Das binäre System Zinn–Schwefel und seine Minerale (abs.). Fortschr. Mineral., 42, 211. (4) (1966) Amer. Mineral., 51, 1551 (abs. ref. 3). (5) Mosburg, S., D.R. Ross, P.M. Bethke, and P. Toulmin (1961) X-ray powder data for herzenbergite, teallite, and tin trisulfide. U.S. Geol. Sur. Prof. Paper 424-C, C347–C348. (6) Kniep, R., D. Mootz, U. Severin, and H. Wunderlich (1982) Structure of tin(II)tin(IV) trisulfide, a redetermination. Acta Cryst., 38, 2022–2023.