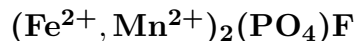


Zwieselite

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Crystal Data: Monoclinic. *Point Group:* $2/m$. Cleavable, massive, to several cm.**Physical Properties:** *Cleavage:* [On {001}, good; on {010}, fair; on {100}, poor] (by analogy to triplite). *Fracture:* [Uneven to subconchoidal.] *Hardness* = [5–5.5] *D*(meas.) = 3.89–3.97 *D*(calc.) = 3.92**Optical Properties:** Translucent to opaque. *Color:* Dark brown, clove-brown, yellowish brown; brownish black to black if altered. *Luster:* Vitreous to resinous.*Optical Class:* Biaxial (+). *Pleochroism:* [Distinct; yellow-brown to reddish brown.]*Dispersion:* [$r > v$, , moderate to strong.] $\alpha = 1.696$ $\beta = 1.704$ $\gamma = 1.713$ $2V$ (meas.) = n.d.**Cell Data:** *Space Group:* $I2/a$. $a = 12.085$ $b = 6.536$ $c = 9.910$ $\beta = 105^\circ 38'$ $Z = 8$ **X-ray Powder Pattern:** Horní Slavkov, Czech Republic; close to triplite.

2.874 (10), 3.053 (9), 3.257 (7), 3.695 (5), 3.431 (4), 2.120 (4), 2.024 (4)

Chemistry:

	(1)	(2)
P ₂ O ₅	32.85	31.58
FeO	41.96	31.97
MnO	18.40	31.56
MgO	0.80	
CaO	1.69	
F	7.21	8.45
–O = F ₂	3.03	3.56
Total	99.88	100.00

(1) Hühnerkobel, Germany. (2) (Fe, Mn)₂(PO₄)F with Fe:Mn = 1:1.**Mineral Group:** Forms a series with triplite.**Occurrence:** A primary phosphate in complex zoned granite pegmatites.**Association:** Triphylite, huréaulite, rockbridgeite.**Distribution:** In Germany, in Bavaria, from Hühnerkobel and in the Birkhöhe pegmatite, near Zwiesel; at Hörllberg; from Döfering; and at Hagendorf. From Horní Slavkov (Schlaggenwald), Czech Republic. In the Mangualde pegmatite, near Mesquitela, Portugal. At the Tremearne pegmatite, Breage, Cornwall, England. From the Storm Mountain pegmatite, Larimer Co., Colorado, USA.**Name:** For its first-noted occurrence at Hühnerkobel, nearby Zwiesel and Rabenstein, Germany.**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 849–852 [zwieselite, part]. (2) Pfaffl, F.A. (1986) Chemical composition of zwieselite. Int. Mineral. Assoc. 14th Meeting (abs. with prog.), 198. (3) Fisher, D.J. (1957) Isokite and triplite from Bohemia. Mineral. Mag., 31, 587–602.