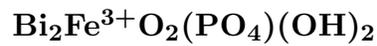


Paulkellerite



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Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals, wedge-shaped with curved faces, to 0.8 mm, showing prominent $\{110\}$ and $\{011\}$, with minor $\{\bar{1}01\}$.

Physical Properties: Hardness = ~ 4 D(meas.) = > 4.2 D(calc.) = [6.23]

Optical Properties: Transparent. *Color:* Pale greenish yellow. *Streak:* Very pale yellow. *Luster:* Vitreous to adamantine.

Optical Class: Biaxial (+). *Orientation:* $Y = b; Z = c; X \wedge a = 25^\circ$. $\alpha = 1.762(2)$
 $\beta = 1.767(2)$ $\gamma = 1.825(5)$ $2V(\text{meas.}) = 37(2)^\circ$ $2V(\text{calc.}) = 34^\circ$

Cell Data: *Space Group:* $C2/c$. $a = 11.380(3)$ $b = 6.660(3)$ $c = 9.653(3)$
 $\beta = 115.34(2)^\circ$ $Z = 4$

X-ray Powder Pattern: Neuhilfe mine, Schneeberg, Germany.
3.123 (10), 2.162 (4), 2.804 (3), 1.442 (3), 5.125 (2), 3.913 (2), 3.338 (2)

Chemistry:

	(1)	(2)
P ₂ O ₅	11.3	11.18
Bi ₂ O ₃	71.6	73.40
Fe ₂ O ₃	14.5	12.58
H ₂ O	2.9	2.84
Total	100.3	100.00

(1) Neuhilfe mine, Schneeberg, Germany; by electron microprobe, total Fe as Fe₂O₃, confirmed by microchemical tests, H₂O by TGA-EGA; corresponds to Bi_{1.90}Fe_{1.12}(P_{0.98}O₄)(OH)_{1.99}.

(2) Bi₂FeO₂(PO₄)(OH)₂.

Occurrence: A rare secondary mineral in Bi–Ni–Co ores in a hydrothermal ore deposit.

Association: Bismuth, skutterudite, pyrite, erythrite, bismutoferrite.

Distribution: From the Neuhilfe mine, Schneeberg, Saxony, Germany.

Name: To honor Dr. Paul Keller (1940–), Professor of Mineralogy, University of Stuttgart, Stuttgart, Germany, for his contributions to the mineralogy of secondary minerals from ore deposits.

Type Material: Mining Academy, Freiberg, Germany; Canadian Museum of Nature, Ottawa, Canada, 53450; National Museum of Natural History, Washington, D.C., USA, 163777.

References: (1) Dunn, P.J., J.D. Grice, F.J. Wicks, and R.A. Gault (1988) Paulkellerite, a new bismuth iron phosphate mineral from Schneeberg, Germany. *Amer. Mineral.*, 73, 870–872.
(2) Grice, J.D. and L.A. Groat (1988) The crystal structure of paulkellerite. *Amer. Mineral.*, 73, 873–875.