Haigerachite $KFe_3^{3+}(H_2PO_4)_6(HPO_4)_2 \cdot 4H_2O$

Crystal Data: Triclinic. *Point Group:* $\overline{1}$. As bladed crystals, to 0.4 mm, flattened on {110} and striated on {001} ‖ {010} and on {100} ‖ [001]; dominant forms include {110}, {100}, {010}, {001}; as fine-grained coatings.

Physical Properties: *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = [2.5–3] (by analogy to parsonsite). D(meas.) = 6.39 (synthetic). D(calc.) = 6.40 Radioactive.

Optical Properties: Transparent to translucent. *Color:* Yellow; pale yellow in transmitted light. *Streak:* Pale yellow. *Luster:* Subadamantine.
Optical Class: Biaxial (+). *Pleochroism:* Weak; X = pale yellow; Z = nearly colorless.
Dispersion: $r > v$. *Absorption:* $X > Z$. $\alpha = 1.882(5)$ β = n.d. $\gamma = 1.915(5)$
2V(meas.) = ∼80°

Cell Data: *Space Group:* $P\overline{1}$. $a = 7.123$ $b = 10.469$ $c = 6.844$ $\alpha = 100°34'$ $\beta = 94°48'$ $\gamma = 91°16'$ Z = 2

X-ray Powder Pattern: Michael mine, Germany; nearly identical to parsonsite.
3.42 (10b), 2.85 (8), 4.42 (6), 3.03 (6), 4.26 (5), 3.33 (5b), 7.09 (3)

Chemistry: (1) Michael mine, Germany; microchemical and spectrographic analysis confirmed Pb, U, and As as major components, P absent; formula established by the similarity of the X-ray powder pattern with that of parsonsite and synthetic $Pb_2(UO_2)(AsO_4)_2$.

Occurrence: A secondary mineral found on a museum specimen from an oxidizing As–Pb-bearing deposit, formed by alteration of galena.

Association: Hügelite, widenmannite, mimetite, barite, galena, quartz.

Distribution: In Germany, from the Michael mine, Weiler, near Lahr, Black Forest, and on the Bühlskopf, near Ellweiler, Rhineland-Palatinate.

Name: Honors Dr. Arthur Francis Hallimond (1890–1968), British mineralogist, London, England, for his work with secondary uranium minerals.

Type Material: n.d.

References: (1) Walenta, K. (1965) Hallimondite, a new uranium mineral from the Michael mine near Reichenbach (Black Forest, Germany). Amer. Mineral., 50, 1143–1157.