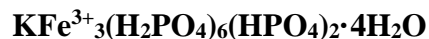


**Haigerachite**

**Crystal Data:** Monoclinic. *Point Group:* 2/m. Forms spherules, to 0.2 mm, consisting of scaly crystals to 0.05 mm; rarely as well-developed, thin tabular, six-sided, pseudo-hexagonal crystals flattened on (001), showing {100} and {110}.

**Physical Properties:** *Cleavage:* Good on {001}. *Fracture:* Uneven. Hardness = 2  
D(meas.) = 2.44(1) D(calc.) = 2.445 Soluble in dilute HCl.

**Optical Properties:** Transparent to translucent. *Color:* White. *Streak:* White. *Luster:* Vitreous.  
*Optical Class:* Biaxial (-).  $\alpha = 1.557(2)$   $\beta = 1.598(2)$   $\gamma = 1.602(2)$   $2V(\text{meas.}) = 32(2)^\circ$   
 $2V(\text{calc.}) = 34^\circ$  *Orientation:*  $X \perp (001)$ .

**Cell Data:** *Space Group:* C2/c [synthetic].  $a = 16.95(3)$   $b = 9.59(2)$   $c = 17.57(3)$   $\beta = 90.85(15)^\circ$   
Z = 4

**X-ray Powder Pattern:** Silberbrünnle mine, central Black Forest, Germany.  
8.83 (100), 3.75 (100), 3.02 (90), 3.23 (50), 7.60 (40), 3.30 (40), 3.11 (40)

Chemistry	(1)
K <sub>2</sub> O	3.79
Na <sub>2</sub> O	0.34
CaO	0.66
Fe <sub>2</sub> O <sub>3</sub>	21.66
Al <sub>2</sub> O <sub>3</sub>	0.66
MnO	0.42
MgO	0.19
P <sub>2</sub> O <sub>3</sub>	53.39
<u>H<sub>2</sub>O</u>	<u>[18.89]</u>
Total	100.00

(1) Silberbrünnle mine, central Black Forest, Germany; electron microprobe analysis, H<sub>2</sub>O by difference; corresponds to K<sub>0.85</sub>Na<sub>0.12</sub>Ca<sub>0.12</sub>Fe<sub>2.85</sub>Al<sub>0.14</sub>Mn<sub>0.06</sub>Mg<sub>0.05</sub>P<sub>7.91</sub>H<sub>22.05</sub>O<sub>36</sub>.

**Occurrence:** A secondary phosphate formed on a mine dump.

**Association:** Quartz, pyrite, gypsum, jarosite, diadochite, gengenbachite.

**Distribution:** From the Silberbrünnle mine dump, upper Haigerachtal, near Gengenbach, central Black Forest, Baden-Württemberg, Germany.

**Name:** For the village and valley near the mine.

**Type Material:** Institute of Mineralogy and Crystal Chemistry, University of Stuttgart, and the Staatlichen Museum für Naturkunde, Stuttgart, Germany.

**References:** (1) Walenta, K. and T. Theye (1999) Haigerachite, a new phosphate mineral from the Silberbrünnle mine near Gengenbach in the central Black Forest. *Aufschluss*, 50, 1-7 (in German, English abs.). (2) (2000) *Amer. Mineral.*, 85, 263-264 (abs. ref. 1).