Zýkaite

\[ \text{Fe}^{3+}\text{(AsO}_4\text{)}_3\text{(SO}_4\text{)(OH)}\cdot\text{15H}_2\text{O} \]

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Crystal Data: Orthorhombic. Point Group: n.d. Fine acicular crystals, to 0.02 mm, covering and composing nodules, to 3 cm, and as a massive cavity filling.


Optical Properties: Semitransparent. Color: Grayish white with pale yellowish green or brownish tint; colorless in transmitted light. Streak: Pale yellowish. Luster: Dull. Optical Class: Biaxial (–). Orientation: Positive elongation, parallel extinction. \( \alpha = 1.632 \) \( \beta = \text{n.d.} \) \( \gamma = 1.646 \) 2V(meas.) = Large.

Cell Data: Space Group: n.d. \( a = 20.853(20) \) \( b = 7.033(4) \) \( c = 36.991(23) \) \( Z = 8 \)

X-ray Powder Pattern: Kaňk, Czech Republic.

Chemistry:

\[
\begin{array}{ll}
\text{SO}_3 & 8.36 \\
\text{P}_2\text{O}_5 & 0.12 \\
\text{As}_2\text{O}_5 & 33.67 \\
\text{Fe}_2\text{O}_3 & 30.58 \\
\text{CaO} & 0.02 \\
\text{H}_2\text{O} & 26.50 \\
\text{insol.} & 0.49 \\
\hline
\text{Total} & 99.74 \\
\hline
\end{array}
\]

(1) Kaňk, Czech Republic; average of two analyses, \( \text{H}_2\text{O} \) by TGA; after deduction of gypsum, corresponds to \( \text{Fe}_{3.96}[\text{AsO}_4\text{]}_3\text{(PO}_4\text{)}_0\text{.02}][\text{SO}_4\text{]}_1\text{.05}(\text{OH})\cdot14.91\text{H}_2\text{O} \).

(2) \( \text{Fe}_4\text{(AsO}_4\text{)}_3\text{(SO}_4\text{)(OH)}\cdot\text{15H}_2\text{O} \).

Occurrence: An alteration product of arsenopyrite and pyrite in ancient mine dumps.

Association: Kaňkite, scorodite, pitticite, “limonite”, arsenopyrite, gypsum, quartz.

Distribution: From the Šafary mine dump, near Kaňk, Kutná Hora district, Czech Republic.

Name: To honor Dr. Václav Zýka (1926– ), Director, Institute of Raw Materials, Kutná Hora, Czech Republic.

Type Material: Charles University, Prague, Czech Republic, 20558; National School of Mines, Paris, France; National Museum of Natural History, Washington, D.C., USA, 144940, 144941.