Kamitugaite

\( \text{PbAl(UO}_2\text{)}_5\text{(PO}_4\text{, AsO}_4\text{)}_2\text{(OH)}_9\cdot 9.5\text{H}_2\text{O} \)

Crystal Data: Triclinic. Point Group: \( \text{T} \) or 1. As thin tablets elongated along [100], with \{010\} dominant, \{001\} less developed, and terminated by \{100\} and \{101\}, to 0.5 mm.

Physical Properties: Cleavage: Good on \{010\} and \{001\}. Hardness = 3 (probable). D\(_{\text{meas.}}\) = 4.03 D\(_{\text{calc.}}\) = 4.47 Radioactive.

Optical Properties: Transparent to translucent. Color: Bright yellow. Streak: White. Luster: Vitreous. Optical Class: Biaxial (−). Pleochroism: Strong; \( X = \) colorless; \( Y = \) yellow. Orientation: \( X \approx b^*; Y \wedge a = 1^\circ-2^\circ; Z \perp a \) and \( b^* \). \( \alpha = [1.709] \quad \beta = 1.735(2) \quad \gamma = 1.744(2) \)

2V\(_{\text{meas.}}\) = 60(3)°

Cell Data: Space Group: \( \text{P} \text{T} \) or \( \text{P} \text{l} \). \( a = 10.98(2) \quad b = 15.96(2) \quad c = 9.068(6) \)

\( \alpha = 95.1(2)^\circ \quad \beta = 96.1(2)^\circ \quad \gamma = 89.0(2)^\circ \quad Z = 2 \)

X-ray Powder Pattern: Kobokobo pegmatite, Congo. 7.95 (100), 3.972 (80), 3.271 (40), 3.175 (40), 15.92 (30), 3.493 (30), 4.307 (25)

Chemistry:

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\begin{array}{ll}
\text{UO}_3 & 71.76 \\
\text{P}_2\text{O}_5 & 5.48 \\
\text{As}_2\text{O}_5 & 2.12 \\
\text{Al}_2\text{O}_3 & 2.39 \\
\text{PbO} & 9.86 \\
\text{H}_2\text{O} & \left[8.39\right] \\
\text{Total} & \left[100.00\right]
\end{array}
\]

(1) Kobokobo pegmatite, Congo; by electron microprobe, average of three analyses, \( \text{H}_2\text{O} \) by difference; corresponding to \( \text{Pb}_{0.90}\text{Al}_{0.96}\text{(UO}_2\text{)}_{5.10}\left[\text{(P}_{0.79}\text{As}_{0.19})\Sigma=0.98\text{O}_4\right]_2\text{(OH)}_9\cdot 9.5\text{H}_2\text{O} \).

Occurrence: A rare secondary mineral in the oxidized uraniferous zone of a complex granite pegmatite.

Association: Dumontite, studtite, triangulite, threadgoldite, phuralumite, upalite, mundite, metatorbernite, muscovite, albite, quartz.

Distribution: From the Kobokobo pegmatite, Lusungu River district, Kivu Province, Congo (Zaire).

Name: For Kamituga, Congo, the mining center on which exploitation of Kobokobo depended.

Type Material: Royal Museum of Central Africa, Tervuren, Belgium, RMG13985, RMG13986.