Kaňkite **$Fe^{3+}AsO_4 \cdot 3.5H_2O$**

Crystal Data: Monoclinic. *Point Group:* n.d. As spherulites and botyroidal crusts of fibrous to elongated tabular spearlike crystals, less than 10 μm.

Physical Properties: *Fracture:* Uneven. Hardness = 2–3 D(meas.) = 2.60–2.70 D(calc.) = 2.732

Optical Properties: Translucent. *Color:* Yellowish green, paler greenish yellow on exposure to air; very pale grayish yellow to pale yellow in transmitted light. *Streak:* Grayish yellow. *Luster:* Dull to vitreous.
Optical Class: Biaxial. *Orientation:* Length-fast. $\alpha = 1.664(2)$ β = n.d. $\gamma = 1.680(2)$ 2V(meas.) = n.d.

Cell Data: *Space Group:* n.d. $a = 18.803(15)$ $b = 17.490(18)$ $c = 7.633(5)$ $\beta = 92.71(5)^\circ$ Z = 16

X-ray Powder Pattern: Kaňk, Czech Republic.
12.8 (100), 4.764 (34), 2.630 (29), 7.56 (25), 4.258 (25), 3.697 (22b), 7.22 (21)

Chemistry:

	(1)	(2)	(3)
SO_3	0.41	2.25	
As_2O_5	43.92	41.11	44.57
Fe_2O_3	31.84	35.02	30.97
H_2O^+	13.91		
H_2O^-	9.91		
H_2O		21.00	24.46
Total	[99.99]	99.38	100.00

(1) Kaňk, Czech Republic; presence of SO_4, AsO_4, and H_2O confirmed by IR; original total 100.40%, after deduction of gypsum and quartz impurities, corresponds to $Fe_{1.02}(As_{0.97}S_{0.07})_{\Sigma=1.04}O_4 \cdot 3.37H_2O$. (2) Suzukura mine, Japan; corresponds to $Fe_{1.07}(As_{0.87}S_{0.07})_{\Sigma=0.94}O_4 \cdot 2.85H_2O$. (3) $Fe(AsO_4) \cdot 3.5H_2O$.

Occurrence: A rare secondary mineral in highly weathered mine dumps containing arsenopyrite (Kaňk, Czech Republic).

Association: Scorodite, pitticite, parascorodite, zýkaite, arsenopyrite, gypsum, "limonite", quartz (Kaňk, Czech Republic); scorodite, parascorodite, vajdakite, arsenic, pyrite, proustite (Svornost mine, Czech Republic).

Distribution: From the Šafary and Kuntery mine dumps, near Kaňk, Kutná Hora district, and in the Svornost mine, Jáchymov (Joachimsthal), Czech Republic. In Germany, at Munzig, near Meissen, and at Brand-Erbisdorf, Saxony; from Menzenschwand, Black Forest. In England, at the King's Wood mine, Buckfastleigh, Devon, and from the South Terras mine, St. Stephen-in-Brannel, Cornwall. At the Suzukura mine, seven km north-northeast of Enzan, Yamanashi Prefecture, Japan.

Name: For the locality that yielded the first specimens, Kaňk, Czech Republic.

Type Material: Charles University, Prague, Czech Republic, 20135; National Museum of Natural History, Washington, D.C., USA, 144939.

References: (1) Čech, F., J. Jansa, and F. Novák (1976) Kaňkite, $FeAsO_4 \cdot 3\frac{1}{2}H_2O$, a new mineral. Neues Jahrb. Mineral., Monatsh., 426–436. (2) (1977) Amer. Mineral., 62, 594 (abs. ref. 1). (3) Kato, A., S. Matsubara, K. Nagashima, I. Nakai, and M. Shimizu (1984) Kaňkite from the Suzukura mine, Enzan city, Yamanashi Prefecture, Japan. Mineral. J. (Japan), 12, 6–14.