Richetite $(Fe^{2+}_{0.31}Mg_{0.19})Pb_{4.86}[U^{5+}(U^{6+}O_2)_{17}O_{18}(OH)_{14}](H_2O)_{\sim 19.5}$

Crystal Data: Triclinic, pseudohexagonal. *Point Group*: $\bar{1}$. As platy crystals, flattened on {001}, displaying {010}, {110}, and {110}, to 0.1 mm, in lamellar aggregates || {001}, on needles of uranophane. *Twinning:* Common on a plane or planes in the [001] zone, to give pseudohexagonal outlines.

Physical Properties: *Cleavage:* {001}, perfect; another ⊥ to the first. Hardness = n.d. VHN = 113 D(meas.) = n.d. D(calc.) = 6.194 Radioactive.

Optical Properties: Opaque to translucent. *Color:* Black, olive-brown; brown in transmitted light. *Luster:* Adamantine.
Optical Class: Biaxial (-). *Pleochroism: X* = pale brown to colorless; *Y* = *Z* = dull brown.
Orientation: X = c*; *Y* ^ [110] = 85°; *Z* ^ [110] = 5°. α = ~ 1.9 β = ~ 2.0 γ = ~ 2.0
2V(meas.) = Very large.

Cell Data: *Space Group: P*$\bar{1}$. *a* = 12.0919(2) *b* = 16.3364(4) *c* = 20.2881(4) α = 68.800(2)° β = 78.6794(18)° γ = 76.1181(19)° Z = 2

X-ray Powder Pattern: Shinkolobwe, D.R. Congo.
3.122 (100), 7.12 (80), 3.55 (60), 3.47 (60), 2.486 (40), 1.961 (40), 2.008 (30)

Chemistry:	(1)	(2)
UO_3	78.28	79.48
PbO	16.38	15.51
H_2O	[5.34]	5.01
Total	100.00	100.00

(1) Shinkolobwe, D.R. Congo; average of eight electron microprobe analyses, H_2O by difference; corresponds to $Pb_{1.07}U_{3.98}O_{13}•4.31H_2O$. (2) $PbU_6O_{13}•4H_2O$. (3) Structural formula from reference 5, no analysis given; $(Fe^{2+}_{0.31}Mg_{0.19})Pb_{4.86}[U^{5+}(U^{6+}O_2)_{17}O_{18}(OH)_{14}](H_2O)_{\sim 19.5}$.

Occurrence: A very rare secondary mineral in the oxidized zone of a hydrothermal uranium deposit (Shinkolobwe, D.R. Congo).

Association: Uraninite, uranophane, becquerelite, masuyite, torbernite, kasolite, rutherfordine, wölsendorfite (Shinkolobwe, D.R. Congo); metazeunerite, nováčekite, zeunerite, antlerite, langite (Jáchymov, Czech Republic).

Distribution: From Shinkolobwe, Katanga Province, Democratic Republic of Congo (Shaba Province, Zaire). At Jáchymov (Joachimsthal), Czech Republic.

Name: Honors Emile Richet (1884-1939), Belgian geologist, formerly Chief Geologist, Union Minière du Haut-Katanga.

Type Material: University of Liège, Liège, Belgium (1712).

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