Ferrisymplesite $Fe_3^{3+}(AsO_4)_2(OH)_3 \cdot 5H_2O$

Crystal Data: Monoclinic. *Point Group:* n.d. Finely fibrous.

Physical Properties: Hardness = n.d. D(meas.) = 2.885 (of the mixture). D(calc.) = n.d.

Optical Properties: Semitransparent. *Color:* Deep amber-brown, yellow-brown, yellow. *Luster:* Resinous.
Optical Class: Biaxial; strongly birefringent. *Pleochroism:* Faint. *Orientation:* Parallel extinction. $n = 1.650$ 2V(meas.) = n.d.

Cell Data: *Space Group:* n.d. Z = n.d.

X-ray Powder Pattern: Neubulach, Germany.
6.77 (10), 4.00 (6), 3.72 (6), 2.96 (5), 2.83 (5), 8.93 (4), 3.38 (4)

Chemistry:

	(1)	(2)
As_2O_5	38.79	39.19
SiO_2	0.88	
Al_2O_3	0.31	
Fe_2O_3	11.67	40.84
CoO	16.86	
NiO	5.73	
MgO	1.05	
CaO	1.46	
H_2O	24.05	19.97
Total	100.80	100.00

(1) Hudson Bay mine, Canada; after deduction of erythrite–annabergite 69%, corresponds to $Fe_{2.98}(AsO_4)_{2.00} \cdot 15.4H_2O$. (2) $Fe_3(AsO_4)_2(OH)_3 \cdot 5H_2O$.

Occurrence: In the oxidized zone of a Co–Ni sulfide deposit (Hudson Bay mine, Canada); in the oxidized zone of a polymetallic hydrothermal ore deposit (Neubulach, Germany).

Association: Erythrite–annabergite (Hudson Bay mine, Canada); copper, malachite (Neubulach, Germany).

Distribution: From the Hudson Bay mine, Timiskaming district, Cobalt, Ontario, Canada. At Neubulach, Black Forest, Germany.

Name: For its *ferric* iron content and supposed relation to *symplesite*.

Type Material: Royal Ontario Museum, Toronto, Canada, M14248; Harvard University, Cambridge, Massachusetts, 101313; National Museum of Natural History, Washington, D.C., USA, 95461.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 753. (2) Walenta, K. (1979) Die Sekundärmineralien der Erzgänge von Neubulach im nördlichen Schwarzwald. Aufschluss, 30, 213–252, esp 232–233 (in German).