Iwashiroite-(Y) $YTaO_4$

Crystal Data: Monoclinic. *Point Group*: 2/*m*, 2 *or m*. As well-formed crystals, tabular on {010}, to 7 mm., with striae parallel [101]. Metamict in part.

Physical Properties: *Cleavage*: Good on {010}; poor on {001}. *Fracture*: Sub-conchoidal. *Tenacity*: Brittle. *Hardness* = 6 VHN = 766-825 (50 g load). D(meas.) = n.d. D(calc.) = 7.135

Optical Properties: Translucent. *Color*: Amber-brown to brown. *Streak*: Pale brown.
Luster: Vitreous to sub-adamantine.
Optical Class: n.d.
R_1-R_2(air; oil): 400 (15.3-14.4; 5.2-5.2), 470 (14.1-13.8; 4.4-4.1), 546 (13.8-13.6; 4.5-4.0), 589 (13.9-13.6; 4.8-4.2), 650 (14.0-13.7; 5.0-4.6), 700 (14.3-14.1, 5.9-5.8)

Cell Data: *Space Group*: *P*2/*a*. a = 5.262(5) b = 5.451(5) c = 5.110(5) β = 95.1(1)° Z = 2

X-ray Powder Pattern: Suishoyama mine, Kawamata, Fukushima Prefecture, Japan.
3.13 (100), 2.95 (94), 1.890 (29), 1.862, (29), 2.73 (26), 2.62 (23), 1.614 (20)

Chemistry:

	(1)		(1)
Y_2O_3	29.10	Tm_2O_3	0.37
Ce_2O_3	0.10	Yb_2O_3	3.33
Nd_2O_3	0.10	Lu_2O_3	0.85
Sm_2O_3	0.36	ThO_2	0.02
Gd_2O_3	1.06	UO_2	0.15
Tb_2O_3	0.25	CaO	0.17
Dy_2O_3	2.38	Ta_2O_5	40.64
Ho_2O_3	0.56	Nb_2O_5	16.66
Er_2O_3	2.09	TiO_2	0.41
		Total	98.60

(1) Suishoyama mine, Japan; average of 18 electron microprobe analyses, corresponds to $(Y_{0.81}Yb_{0.05}Dy_{0.04}Er_{0.03}Gd_{0.02}Lu_{0.01}Ho_{0.01}Sm_{0.01}Ca_{0.01}Tm_{0.01})_{\Sigma=1.00}(Ta_{0.58}Nb_{0.39}Ti_{0.02})_{\Sigma=0.99}O_4$.

Occurrence: In an NYF-type granitic pegmatite.

Association: Quartz, microcline, annite.

Distribution: From the Suishoyama mine, Kawamata, Fukushima Prefecture, Japan.

Name: From *Iwashiro*, the old provincial name for the central part of Fukushima Prefecture, and the dominant rare earth element, *Y*ittrium.

Type Material: National Science Museum, Tokyo, Japan (NSM-M28537).

References: (1) Hori, H., T. Kobayashi, R. Miyawaki, S. Matsubara, K. Yokoyama, and M. Shimizu (2005) Iwashiroite-(Y), $YTaO_4$, a new mineral from Suishoyama, Kawamata Town, Fukushima Prefecture, Japan. J. Mineral. Petrol. Sci., 101, 170-177. (2) (2006) Amer. Mineral., 91, 1946-1947 (abs. ref. 1).