Ishikawaite $(U, Fe, Y, Ca)(Nb, Ta)O_4(?)$

Crystal Data: Orthorhombic. *Point Group:* n.d. As prismatic crystals, tabular on {100}, with nine forms noted, to 1 cm.

Physical Properties: *Fracture:* Conchoidal. Hardness = 5–6 D(meas.) = 6.2–6.4 D(calc.) = n.d. Radioactive.

Optical Properties: Opaque. *Color:* Black. *Streak:* Dark brown. *Luster:* Waxy, resinous to vitreous.
Optical Class: Isotropic.
R: n.d.

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

X-ray Powder Pattern: n.d.

Chemistry:

	(1)	(2)		(1)	(2)
Nb_2O_5	36.80	39.5	Al_2O_3	0.87	
Ta_2O_5	15.00	5.13	RE_2O_3	8.40	9.17
SiO_2	0.30		FeO	11.78	9.47
TiO_2	0.21	0.59	MnO	0.40	2.10
SnO_2	1.20	1.52	MgO	1.07	
ThO_2		6.39	CaO	0.86	0.11
UO_2	21.88	23.6	H_2O^+	0.89	
			Total	99.66	97.6

(1) Ishikawa district, Japan. (2) Honeycomb Hill, Utah, USA; by electron microprobe, RE_2O_3 = Y_2O_3 1.05%, La_2O_3 0.03%, Ce_2O_3 0.41%, Nd_2O_3 0.73%, Sm_2O_3 0.33%, Gd_2O_3 0.50%, Tb_2O_3 0.21%, Dy_2O_3 1.37%, Er_2O_3 1.27%, Yb_2O_3 2.87%, Lu_2O_3 0.40%.

Occurrence: In pegmatite, and alluvium (Ishikawa district, Japan); as microinclusions in vitrophyre clasts in highly differentiated, rare-element rich, pyroclastic rhyolites (Honeycomb Hills, Utah, USA).

Association: Samarskite (Ishikawa district, Japan).

Distribution: From the Ishikawa district, Fukushima Prefecture, Japan. Reported from other localities in Japan and elsewhere, but confirmation is impossible, lacking type material. Material from the Honeycomb Hills, Juab Co., Utah, USA, for example, seems very similar but is regarded as uranoan samarskite.

Name: For the occurrence in the Ishikawa district, Japan.

Type Material: Destroyed.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 766. (2) Vlasov, K.A., Ed. (1966) Mineralogy of rare elements, v. II, 533. (3) Nambu, M., Ed. (1970) Introduction to Japanese minerals, Geol. Surv. Japan, 104–105. (4) Congdon, R.D. and W.P. Nash (1991) Eruptive pegmatite magma: rhyolite of the Honeycomb Hills, Utah. Amer. Mineral., 76, 1261–1278.