

**Kobeite-(Y)****(Y, U)(Ti, Nb)<sub>2</sub>(O, OH)<sub>6</sub>(?)**

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**Crystal Data:** Cubic; metamict. *Point Group:* n.d. As long to short prismatic crystals, striated parallel to elongation, to 5 cm; in parallel to radiating groups, and dendritic aggregates.

**Physical Properties:** *Cleavage:* Perpendicular to the length, probably a parting. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 5.5 D(meas.) = 4.60 D(calc.) = [4.13] Strongly radioactive.

**Optical Properties:** Transparent to translucent. *Color:* Black to dark brown; coffee-brown to brownish yellow in thin section. *Streak:* Reddish brown. *Luster:* Vitreous to resinous. *Optical Class:* Isotropic.  $n = 2.205(5)$

**Cell Data:** *Space Group:* n.d.  $a = 5.021\text{--}5.057$   $Z = [1]$

**X-ray Powder Pattern:** Shiraishi pegmatite, Japan; after heating one hour at 620 °C in air. 2.89 (10), 1.776 (8), 1.514 (7), 2.506 (4), 1.154 (3b), 1.126 (3b), 1.027 (2b)

<b>Chemistry:</b>	(1)	(2)	(1)	(2)
U <sub>3</sub> O <sub>8</sub>	5.39	5.84	Ce <sub>2</sub> O <sub>3</sub>	1.83
(Nb, Ta) <sub>2</sub> O <sub>5</sub>	7.25	8.01	Fe <sub>2</sub> O <sub>3</sub>	8.32
SiO <sub>2</sub>	1.99	1.59	MnO	2.16
TiO <sub>2</sub>	26.21	26.02	MgO	0.50
ZrO <sub>2</sub>	14.91	17.08	CaO	0.53
ThO <sub>2</sub>	1.25	1.31	H <sub>2</sub> O <sup>+</sup>	3.87
Al <sub>2</sub> O <sub>3</sub>	0.33	0.35	H <sub>2</sub> O <sup>-</sup>	0.47
Y <sub>2</sub> O <sub>3</sub>	24.40	21.98	<b>Total</b>	<b>[99.41]</b>
				<b>99.60</b>

(1) Shiraishi pegmatite, Japan; total Fe as Fe<sub>2</sub>O<sub>3</sub>; H<sub>2</sub>O<sup>+</sup> as loss on ignition; original total given as 99.73%. (2) Ushio mine, Japan; H<sub>2</sub>O<sup>+</sup> as loss on ignition.

**Occurrence:** In granite pegmatites (Japan); in a stream cobble of graphic granite (Paringa River, New Zealand).

**Association:** Anatase, parisite, zircon, monazite, chevkinite, xenotime, allanite, biotite, albite, quartz, muscovite (Shiraishi pegmatite, Japan); plagioclase, allanite, zircon, fergusonite, magnetite, ilmenite, pyrite (Ushio mine, Japan); plagioclase, microcline, epidote, muscovite, chlorite, quartz (Paringa River, New Zealand).

**Distribution:** In Japan, from the Shiraishi pegmatite, Oyama, and in the Ushio mine, Omiya, Kyoto Prefecture; from Senogawa-machi, Hiroshima Prefecture. In a cobble found in the Paringa River, about 1.2 km upstream from the Weheka-Paringa highway bridge, South Westland, New Zealand.

**Name:** For Kobe-Mura [presently Oyama-cho], Japan, from where it was first noted.

**Type Material:** n.d.

**References:** (1) Takubo, J., Y. Ukai, and T. Minato (1950) Studies on the minerals containing rare elements. (part 11) A new mineral [kobeite] found at Shirashi, Kobe-mura, Nakagun, Kyoto Prefecture, Japan. *J. Geol. Soc. Japan*, 56(663), 509–513 (in Japanese with English abs.). (2) (1951) *Amer. Mineral.*, 36, 942 (abs. ref. 1). (3) Hutton, C.O. (1957) Kobeite from Paringa River, South Westland, New Zealand. *Amer. Mineral.*, 42, 342–353. (4) Masutomi, K., K. Nagashima, and A. Kato (1961) Kobeite from the Ushio mine, Kyoto Prefecture, Japan, and re-examination of kobeite. *Mineral. J. (Japan)*, 3, 139–147. (5) Vlasov, K.A., Ed. (1966) *Mineralogy of rare elements*, v. II, 226–227. (6) Nambu, M., Ed. (1970) *Introduction to Japanese minerals*. *Geol. Surv. Japan*, 64–65.

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