Fergusonite-beta-(Y) $YNbO_4$

Crystal Data: Monoclinic; typically metamict. *Point Group:* n.d. Crystals prismatic, to 0.2 mm in cross section.

Physical Properties: Hardness = [5.5–6.5] [by analogy to fergusonite-(Y)]. D(meas.) = 5.65 D(calc.) = [5.63]

Optical Properties: Semitransparent. *Color:* Light yellow.
Optical Class: [Isotropic when metamict.] n = n.d.

Cell Data: *Space Group:* n.d. $a = 5.12$ $b = 10.89$ $c = 5.20$ $\beta = 88°10'$ Z = [4]

X-ray Powder Pattern: n.d.

Chemistry: (1) "Central Asia"; X-ray spectrographic analysis showed major Y, Nb, U; Fe ∼2.5%; Ta, Th ∼1%; Ca, Zr ∼0.5%; Ti ∼0.2%; Pb ∼0.1%.

Polymorphism & Series: Dimorphous with fergusonite-(Y).

Occurrence: In microcline-bearing granite stocks.

Association: Microcline, quartz.

Distribution: From an undisclosed locality [Bayan Obo Fe–Nb–RE deposit, 130 km north of Baotou, Inner Mongolia, China] in "Central Asia".

Name: In allusion to its dimorphous relation to *fergusonite-(Y)*.

Type Material: n.d.

References: (1) Gorshevskaya, S.A., G.A. Sidorenko, and I.E. Smorchkov (1961) A new modification of fergusonite: β-fergusonite [fergusonite-beta-(Y)]. Geol. Mestorozhdenii Redkikh Elementov, 9, 28–29 (in Russian). (2) (1961) Amer. Mineral., 46, 1516–1517 (abs. ref. 1). (3) Weitzel, H. and H. Schröcke (1980) Kristallstrukturverfeinerungen von Euxenit, $Y(Nb_{0.5}Ti_{0.5})_2O_6$, und M-Fergusonit, $YNbO_4$. Zeits. Krist., 152, 69–82 (in German with English abs.). (4) Trunov, V.K., V.A. Efremov, Y.A. Velikopodnyi, and I.M. Averina (1981) The structure of $YNbO_4$ crystals at room temperature. Kristallografiya (Sov. Phys. Crystal.), 26, 67–71 (in Russian). (5) Kinzhibalo, L.N., V.K. Trunov, A.A. Evdokimov, and V.G. Krongauz (1982) Refinement of the crystal structure of fergusonite. Kristallografiya (Sov. Phys. Crystal.), 27, 43–48 (in Russian). (6) Peishan Zhang and Pejie Tao (1987) Characteristics of the fergusonite- and aeschynite-group minerals in China. Zhongguo Xitu Xuebao, 5(1), 1–7 (in Chinese). (7) (1987) Chem. Abs., 107, 241 (abs. ref. 6).