Feitknechtite β–$\mathbf{Mn^{3+}O(OH)}$

Crystal Data: Hexagonal. *Point Group:* $\overline{3}\ 2/m$. Hexagonal platelets, to 3 mm, in aggregates with hausmannite; granular, earthy.

Physical Properties: Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.249 (synthetic).

Optical Properties: Opaque. *Color:* Brownish black. *Luster:* Dull.
Optical Class: Uniaxial.
R_1–R_2: n.d.

Cell Data: *Space Group:* $P\overline{3}m1$ (synthetic). $a = 3.32$ $c = 4.71$ Z = 1

X-ray Powder Pattern: Synthetic.
4.62 (10), 2.64 (5), 2.36 (2b), 1.96 (2b), 1.55 (1), 1.50 (1)

Chemistry:

	(1)	(2)
SiO_2	1.10	
TiO_2	0.00	
MnO_2	48.78	49.43
Al_2O_3	0.00	
Fe_2O_3	0.44	
MnO	40.91	40.33
MgO	0.02	
CaO	0.08	
BaO	0.00	
H_2O^+	4.53	10.24
H_2O^-	4.57	
Total	100.43	100.00

(1) Noda-Tamagawa mine, Japan. (2) MnO(OH).

Polymorphism & Series: Trimorphous with manganite and groutite.

Occurrence: In a mixture with hausmannite, formed by supergene oxidation of and replacing earlier pyrochroite.

Association: Pyrochroite, hausmannite.

Distribution: From Franklin, Sussex Co., New Jersey, USA. In Japan, in the Noda-Tamagawa and Tanohata mines, Iwate Prefecture; the Hamayokokawa mine, Nagano Prefecture; the Taguchi mine, Aichi Prefecture; and the Ioi mine, Shiga Prefecture. At Långban and Pajsberg, Värmland, Sweden.

Name: To honor Dr. Walter Feitknecht (1899–?), Swiss Professor of Chemistry, University of Berne, Berne, Switzerland, who synthesized the compound.

Type Material: n.d.

References: (1) Bricker, O. (1965) Some stability relations in the system $Mn-O_2-H_2O$ at 25° and one atmosphere total pressure. Amer. Mineral., 50, 1296–1354. (2) Frondel, C. (1953) New manganese oxides: hydrohausmannite [feitknechtite + hausmannite] and woodruffite. Amer. Mineral., 38, 761–769. (3) Nambu, M., K. Tanida, T. Kitamura, and T. Komura (1969) Feitknechtite and its origin from Noda-Tamagawa mine, Iwate Prefecture, Japan. Ganseki Kobutsu Kosho Gakkaishi, 59(3), 91–107 (in Japanese). (4) (1970) Chem. Abs., 72, 121 (abs. ref. 3). (5) Meldau, R., H. Newesley, and H. Strunz (1974) Zur Kristallchemie von Feitknechtit. Naturwiss., 60(8), 387 (in German).