Hejtmanite $Ba(Mn^{2+},Fe^{2+})_2TiO(Si_2O_7)(OH,F)_2$

Crystal Data: Monoclinic. *Point Group:* $2/m$. As laths and platy crystals, with dominant {100} and elongated along [001], up to 2 cm, and in groups.

Physical Properties: *Cleavage:* Perfect on {100}; poor parting on {0*kl*}. *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = n.d. D(meas.) = 3.97–4.06, average 4.02 D(calc.) = 4.29

Optical Properties: Transparent to translucent. *Color:* Brownish or golden to yellow. *Streak:* Brownish yellow. *Luster:* Vitreous.
Optical Class: Biaxial (–). *Pleochroism:* X = light yellow-green; Y = dark golden yellow; Z = light yellow. *Orientation:* $X = b$; $Y \wedge c = 37.9°$; $Z \wedge a = 15.9°$. *Absorption:* $Y > Z = X$. $\alpha = 1.814(1)$ $\beta = 1.846(1)$ $\gamma = 1.867(1)$ 2V(meas.) = 76.4° 2V(calc.) = 76.8°

Cell Data: *Space Group:* $P2_1/m$. $a = 11.748(4)$ $b = 13.768(5)$ $c = 10.698(4)$ $\beta = 112.27(2)°$ Z = 8

X-ray Powder Pattern: Mbolwe Hill, Zambia.
2.726 (100), 5.472 (32), 3.241 (21), 3.215 (21), 3.455 (17), 2.180 (16), 3.669 (14)

Chemistry:

	(1)		(1)
SiO_2	23.52	BaO	30.20
TiO_2	13.27	Na_2O	0.06
Al_2O_3	0.37	K_2O	0.30
Nb_2O_5	1.4	F	3.3
FeO	11.29	Cl	< 0.1
MnO	14.12	H_2O	[1.86]
MgO	0.13	$-O = (F,Cl)_2$	1.39
CaO	0.00	Total	[98.43]

(1) Mbolwe Hill, Zambia; by electron microprobe, Nb by energy-dispersive analysis, H_2O from stoichiometry; corresponds to $(Ba_{1.04}K_{0.03}Mg_{0.02}Na_{0.01})_{\Sigma=1.10}(Mn_{1.05}Fe_{0.82})_{\Sigma=1.87}(Ti_{0.87}Nb_{0.06})_{\Sigma=0.93}(Si_{2.06}Al_{0.04})_{\Sigma=2.10}O_8[(OH)_{1.09}F_{0.91}]_{\Sigma=2.00}$.

Polymorphism & Series: Forms a series with bafertisite.

Occurrence: In arfvedsonite veins in pegmatite cutting alkalic granite and syenite (Mbolwe Hill, Zambia).

Association: Manganoan arfvedsonite, albite, bastnäsite, chevkinite, manganoan ilmenite, apatite, aegirine (Mbolwe Hill, Zambia).

Distribution: On Mbolwe Hill, Mkushi River area, Central Province, Zambia. In the Dara-i-Pioz massif, Alai Range, Tien Shan, Tajikistan.

Name: To honor Dr. Bohuslav Hejtman, Emeritus Professor of Petrology, Charles University, Prague, Czech Republic.

Type Material: Charles University and the National Museum, Prague, Czech Republic.

References: (1) Vrána, S., M. Rieder, and M.E. Gunter (1992) Hejtmanite, a manganese-dominant analogue of bafertisite, a new mineral. Eur. J. Mineral., 4, 35–43. (2) (1992) Amer. Mineral., 77, 1306 (abs. ref. 1).