

## Hejtmanite

 $\text{Ba}(\text{Mn}^{2+}, \text{Fe}^{2+})_2\text{TiO}(\text{Si}_2\text{O}_7)(\text{OH}, \text{F})_2$ 

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**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  $\{0kl\}$ . *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = n.d.  $D(\text{meas.}) = 3.97\text{--}4.06$ , average 4.02  $D(\text{calc.}) = 4.29$

**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:*  $X = b$ ;  $Y \wedge c = 37.9^\circ$ ;  $Z \wedge a = 15.9^\circ$ . *Absorption:*  $Y > Z = X$ .  $\alpha = 1.814(1)$   $\beta = 1.846(1)$   $\gamma = 1.867(1)$   $2V(\text{meas.}) = 76.4^\circ$   $2V(\text{calc.}) = 76.8^\circ$

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

**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 <sub>2</sub>	23.52	BaO	30.20
TiO <sub>2</sub>	13.27	Na <sub>2</sub> O	0.06
Al <sub>2</sub> O <sub>3</sub>	0.37	K <sub>2</sub> O	0.30
Nb <sub>2</sub> O <sub>5</sub>	1.4	F	3.3
FeO	11.29	Cl	< 0.1
MnO	14.12	H <sub>2</sub> O	[1.86]
MgO	0.13	-O = (F, Cl) <sub>2</sub>	1.39
CaO	0.00	Total	[98.43]

(1) Mbolwe Hill, Zambia; by electron microprobe, Nb by energy-dispersive analysis, H<sub>2</sub>O from stoichiometry; corresponds to  $(\text{Ba}_{1.04}\text{K}_{0.03}\text{Mg}_{0.02}\text{Na}_{0.01})_{\Sigma=1.10}(\text{Mn}_{1.05}\text{Fe}_{0.82})_{\Sigma=1.87}(\text{Ti}_{0.87}\text{Nb}_{0.06})_{\Sigma=0.93}(\text{Si}_{2.06}\text{Al}_{0.04})_{\Sigma=2.10}\text{O}_8[(\text{OH})_{1.09}\text{F}_{0.91}]_{\Sigma=2.00}$ .

**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).