

Bafertisite**Ba(Fe²⁺, Mn²⁺)₂TiOSi₂O₇(OH, F)₂**

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Crystal Data: Monoclinic. *Point Group:* *m*. Crystals of simple rhombic habit, elongated along [100] and flattened on {001}. As aggregates of acicular crystals, to 1.5 cm. *Twinning:* Ubiquitous on {001}, polysynthetic.

Physical Properties: *Cleavage:* Perfect on {001}. Hardness = ~5 D(meas.) = 3.96–4.25 D(calc.) = 3.8

Optical Properties: Semitransparent. *Color:* Bright red, yellowish red to light brown, straw-brown to tan.

Optical Class: Biaxial (–). *Pleochroism:* *X* = yellow-red to reddish brown; *Y* = yellow; *Z* = pale yellow to greenish yellow. *Orientation:* *Y* = *b*; *X* ∧ *a* = 5.5°. *Absorption:* *X* > *Z*. $\alpha = 1.805\text{--}1.808$ $\beta = 1.835$ $\gamma = 1.860\text{--}1.862$ 2V(meas.) = 54°–86°

Cell Data: *Space Group:* *Cm*. *a* = 10.60 *b* = 13.64 *c* = 12.47 $\beta = 119^\circ 30'$ *Z* = 8

X-ray Powder Pattern: Baiyun-Obo deposit, China.

2.65 (100), 2.11 (40), 1.72 (40), 2.52 (30), 2.23 (30), 2.07 (30), 1.75 (30)

Chemistry:	(1)	(2)		(1)	(2)
SiO ₂	23.68	25.18	BaO	29.98	26.59
TiO ₂	15.39	14.27	K ₂ O	0.12	0.33
Al ₂ O ₃	0.29	1.00	Na ₂ O	0.49	0.38
Fe ₂ O ₃	1.08	3.67	F		3.50
Nb ₂ O ₅	0.84	0.32	Cl	0.63	
FeO	22.56	10.82	H ₂ O ⁺	1.65	2.16
MnO	1.62	12.77	H ₂ O [–]	1.14	
MgO	0.50		–O = (F, Cl) ₂	0.14	1.47
CaO	0.37	0.30	Total	100.20	99.82

(1) Baiyun-Obo deposit, China. (2) Burpala massif, Russia; corresponding to Ba(Mn_{0.90}Fe_{0.76}²⁺Fe_{0.33}³⁺)_{Σ=1.99}TiOSi₂O₇(OH, F)₂.

Polymorphism & Series: Forms a series with hejtmanite.

Occurrence: In hydrothermal veins (Baiyun-Obo deposit, China); in a dike of microcline granite-aplite (Burpala massif, Russia).

Association: Aegirine, fluorite, barite, bastnäsite (Baiyun-Obo deposit, China).

Distribution: In China, from the Baiyun-Obo mine, near Pao-t'ou, Inner Mongolia. From the Burpala massif, about 120 km north of Lake Baikal, eastern Siberia, Russia. At an undefined locality in Kazakhstan. In the Fountain quarry, near Fountain, Pitt Co., North Carolina, USA.

Name: For elements in the composition, BArium, iron (FERrum), TItanium, and SIlicon.

Type Material: n.d.

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