

Orthoericssonite

BaMn₂²⁺Fe³⁺OSi₂O₇(OH)

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As thick plates, to 2 cm, tabular || {100}, which invariably include ericssonite. *Twinning:* Rarely on {100}, observed in thin section.

Physical Properties: *Cleavage:* Perfect on {100}, fair on {011}. *Tenacity:* Brittle. Hardness = 4.5–5.5 D(meas.) = 4.21–4.22 D(calc.) = 4.27 Weakly magnetic.

Optical Properties: Translucent. *Color:* Deep reddish black; in thin section, brown to yellowish brown. *Streak:* Deep brown. *Luster:* Submetallic to pearly on the cleavage. *Optical Class:* Biaxial (+); properties indistinguishable from ericssonite. *Pleochroism:* X = pale greenish tan, yellowish brown; Y = reddish brown; Z = deep brown. *Orientation:* X = b; Y = c; Z = a. *Dispersion:* r > v, perceptible to strong. *Absorption:* Z > Y > X. α = 1.802–1.807 β = 1.833–1.840 γ = 1.888–1.890 2V(meas.) = 43°–50°

Cell Data: *Space Group:* Pnmn. a = 20.37 b = 7.03 c = 5.34 Z = 4

X-ray Powder Pattern: Långban, Sweden. 3.510 (10), 2.687 (7b), 2.132 (7), 10.12 (6), 2.780 (6b), 1.752 (6), 1.597 (6)

Chemistry:	(1)	(2)	(3)		(1)	(2)	(3)
SiO ₂	20.83	24.97	23.83	MgO		0.70	
TiO ₂		0.74		SrO		5.35	
Al ₂ O ₃		0.35		BaO	29.81	21.26	30.41
Fe ₂ O ₃	14.47	14.98	15.83	Li ₂ O		0.01	
As ₂ O ₅	1.23			Na ₂ O		0.08	
FeO		7.91		K ₂ O		0.23	
MnO	24.38	21.49	28.14	H ₂ O	1.52	1.11	1.79
PbO	1.40			CO ₂		0.61	
				Total	93.64	99.79	100.00

(1) Långban, Sweden; by electron microprobe, intergrown with ericssonite, oxidation states and H₂O separately determined. (2) Hijikuzu mine, Japan. (3) BaMn₂FeOSi₂O₇(OH).

Polymorphism & Series: Dimorphous with ericssonite.

Occurrence: In a fine-grained manganous aegirine zone in well-banded tephroite-rhodonite-manganous aegirine skarn (Långban, Sweden); in metamorphosed manganese ore (Hijikuzu mine, Japan).

Association: Ericssonite, tephroite, rhodonite, manganous aegirine, hedyphane, andradite, hausmannite, långbanite, richterite (Långban, Sweden); jacobsite, rhodonite, aegirine, tephroite, yoshimurite (Hijikuzu mine, Japan).

Distribution: From Långban, Värmland, Sweden. In the Hijikuzu mine, Iwate Prefecture, Japan.

Name: For its ORTHOrhombic crystallization and relation to *ericssonite*.

Type Material: National Museum of Natural History, Washington, D.C., USA, 120061.

References: (1) Moore, P.B. (1971) Ericssonite and orthoericssonite, two new members of the lamprophyllite group, from Långban, Sweden. *Lithos*, 4, 137–145. (2) (1971) *Amer. Mineral.*, 56, 2157 (abs. ref. 1). (3) Matsubara, S. and K. Nagashima (1975) Orthoericssonite from the Hijikuzu mine, Iwate Prefecture, Japan. *Mineral. J. (Japan)*, 7, 513–525. (4) Matsubara, S. (1980) The crystal structure of orthoericssonite. *Mineral. J. (Japan)*, 10, 107–121.

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