Orthoericssonite $BaMn_2^{2+}Fe^{3+}OSi_2O_7(OH)$

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_2O_3		0.35		BaO	29.81	21.26	30.41
Fe_2O_3	14.47	14.98	15.83	Li_2O		0.01	
As_2O_5	1.23			Na_2O		0.08	
FeO		7.91		K_2O		0.23	
MnO	24.38	21.49	28.14	H_2O	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 H_2O separately determined. (2) Hijikuzu mine, Japan. (3) $BaMn_2FeOSi_2O_7(OH)$.

Polymorphism & Series: Dimorphous with ericssonite.

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

Association: Ericssonite, tephroite, rhodonite, manganoan aegirine, hedyphane, andradite, hausmannite, långbanite, richterite (Långban, Sweden); jacobsite, rhodonite, aegirine, tephroite, yoshimuraite (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.