

Euxenite-(Y)**(Y, Ca, Ce, U, Th)(Nb, Ta, Ti)₂O₆**

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Crystal Data: Orthorhombic; typically metamict. *Point Group:* $2/m\ 2/m\ 2/m$. As stout prismatic crystals, to 10 cm, may be flattened || [100] or [010]; commonly in parallel, subparallel, or radiating aggregates; compact massive. *Twining:* Common on {201}; rare on {101} or {013}.

Physical Properties: *Fracture:* Conchoidal to subconchoidal. *Tenacity:* Brittle. Hardness = 5.5–6.5 VHN = 633–692 (50 g load). D(meas.) = 5.3–5.9 D(calc.) = [5.16] Radioactive.

Optical Properties: Opaque, translucent on thin edges. *Color:* Black, brownish black, greenish black; brown to yellow-brown in transmitted light. *Streak:* Yellowish, grayish, or reddish brown. *Luster:* Brilliant submetallic, waxy to resinous on fractures.

Optical Class: Isotropic. $n = 2.06\text{--}2.24$

$R_1\text{--}R_2$: (470) 13.7–15.6, (546) 13.0–15.6, (589) 12.5–15.0, (650) 12.4–15.0

Cell Data: *Space Group:* $Pcmn$ (synthetic $YNbTiO_6$). $a = 5.5528(6)$ $b = 14.6432(20)$
 $c = 5.1953(7)$ $Z = 4$

X-ray Powder Pattern: Risør, Norway; after heating at 1200 °C.
2.99 (100), 3.66 (40), 2.95 (40), 2.60 (30), 1.830 (30), 1.727 (30), 2.78 (25)

Chemistry:	(1)		(1)		(1)
UO ₃	0.04	SnO ₂	0.12	MnO	0.59
Nb ₂ O ₅	41.43	UO ₂	0.67	PbO	0.37
Ta ₂ O ₅	3.84	Al ₂ O ₃	0.13	MgO	0.13
SiO ₂	0.07	Ce ₂ O ₃	4.34	CaO	4.86
TiO ₂	16.39	(Y,Er) ₂ O ₃	18.22	H ₂ O ⁺	1.90
ThO ₂	4.95	Fe ₂ O ₃	1.32	H ₂ O ⁻	0.06
ZrO ₂	0.04	FeO	0.77		
				Total	100.24

(1) Lyndoch Township, Ontario, Canada.

Occurrence: From granite pegmatites; as a component of detrital black sands.

Association: Albite, microcline, biotite, muscovite, ilmenite, monazite, xenotime, zircon, beryl, magnetite, garnet, allanite, gadolinite, aeschynite-(Y), thorite, uraninite, betafite, columbite.

Distribution: Numerous localities worldwide. In Norway, from Jølster, Söndfjord; at Alve, on Tromö Island; on Hydra (Hitterö) Island, near Flekkefjord; at many other places between Tvedestrand and Arendal, and in Iveland and Evje Parishes, Sättersdal. In Sweden, in the Ruotevare Fe–Ti deposit, near Kvikkjokk, Norrbotten; at Ytterby, on Resarö Island, near Vaxholm; and elsewhere. From Huntla, Pitkäranta district, Lake Ladoga, Karelia, Russia. In Madagascar, large crystals from Vohimasina; Ambatofotsikely; Ankazobe, near Ambohitantely; Ambolotara; Ranomafana; and elsewhere. In Brazil, from Santa Clara, Pomba, and Espirito Santo, Minas Gerais. In Canada, from Lyndoch, Sabine, and Mattawan Townships, and elsewhere in Ontario; also in Quebec. In the USA, from the Rutherford pegmatite, Amelia Co., the Nanco pegmatite, Bedford Co., and others in Virginia; from Morton, Delaware Co., Pennsylvania; at Encampment, Carbon Co., Wyoming; from Guffey, Park Co., near Bergen Park, Jefferson Co., and the Colorado feldspar pegmatite, Fremont Co., Colorado.

Name: From the Greek for *hospitable*, in allusion to the wide variety of rare elements in its composition.

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