

Ceripyrochlore-(Ce)**(Ce, Ca, Y)₂(Nb, Ta)₂O₆(OH, F)**

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Crystal Data: Cubic; may be metamict. *Point Group:* $4/m\bar{3}2/m$. As octahedra, to 3 mm.**Physical Properties:** *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 5–5.5
D(meas.) = 4.13–4.65 D(calc.) = n.d.**Optical Properties:** Transparent to opaque. *Color:* Pale to dark brown, black; yellow-brown to red-brown in transmitted light. *Streak:* Pale brown, yellowish brown. *Luster:* Resinous on fractures.*Optical Class:* Isotropic; may be faintly anisotropic in nonmetamict material. $n = 2.02$ – 2.2 **Cell Data:** *Space Group:* $Fd\bar{3}m$. $a = 10.385$ – 10.416 $Z = 8$ **X-ray Powder Pattern:** n.d.

Chemistry:	(1)	(2)		(1)	(2)
U ₃ O ₈	0.00	0.07	MnO	trace	0.1
Nb ₂ O ₅	55.22	64.4	PbO		0.01
Ta ₂ O ₅	5.86	0.41	MgO	0.16	
V ₂ O ₅		0.02	CaO	4.10	12.6
SiO ₂	3.10	0.15	SrO		0.2
TiO ₂	2.88	2.3	BaO		0.05
ZrO ₂	0.00	3.5	Na ₂ O	2.52	1.9
ThO ₂	0.20	0.1	K ₂ O	0.57	0.04
Al ₂ O ₃		0.12	F	0.00	0.11
Y ₂ O ₃	5.07	0.13	H ₂ O ⁺	5.95	0.34
RE ₂ O ₃	13.33	11.93	H ₂ O ⁻	0.45	
Fe ₂ O ₃	0.50	2.23	<u>-O = F₂</u>		[0.05]
FeO	0.02	0.11	Total	99.93	[100.77]

(1) Wasau, Wisconsin, USA. (2) Schelingen quarry, Germany; original total given as 101.18%; RE₂O₃ = Ce₂O₃ 8.4%, La₂O₃ 1.6%, Nd₂O₃ 1.2%, Pr₂O₃ 0.4%, Sm₂O₃ 0.2%, Gd₂O₃ 0.08%, Dy₂O₃ 0.03%, Eu₂O₃ 0.016%; corresponds to [Ca_{0.83}RE_{0.26}Na_{0.21}(Sr, Fe, U, Th, Ba)_{0.02}]_{Σ=1.32} [Nb_{1.69}Ti_{0.10}Zr_{0.10}Fe_{0.09}(Si, Ta, Al, V)_{0.02}]_{Σ=2.00}O_{6.17}[(OH)_{0.07}F_{0.02}]_{Σ=0.09}.

Mineral Group: Pyrochlore group and subgroup; $\Sigma Ce_A > 20\%$; $(Nb + Ta)_B > 2Ti_B$; $Nb_B > Ta_B$.**Occurrence:** In pegmatites related to alkalic igneous rocks and in nepheline syenites; in weathered residuum derived from carbonatites.**Association:** Aegirine, quartz, feldspar, ferrian biotite, rutile, fluorite, zirconium minerals (Wasau, Wisconsin, USA); latrappite, apatite, calcite (Oka, Canada).**Distribution:** From Wasau, Marathon Co., Wisconsin, USA. At Oka, Quebec, Canada. In the Schelingen quarry, Kaiserstuhl, Baden-Württemberg, Germany. From Alpe Rosso, Val Vigezzo, Piedmont, Italy. At the Kent massif, Kazakhstan. From the Mt. Weld carbonatite, 35 km south of Laverton, Western Australia. In the Lueshe carbonatite, 150 km north of Goma, Kivu Province, Congo (Zaire).**Name:** For membership in the *pyrochlore* group and significant CERium content.**Type Material:** n.d.

References: (1) Hogarth, D.D. (1977) Classification and nomenclature of the pyrochlore group of minerals. *Amer. Mineral.*, 62, 403–410 [marignacite = ceripyrochlore-(Ce)]. (2) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 750, 755 [marignacite]. (3) Chistyakova, M.B. and M.E. Kazakova (1975) Find of marignacite [ceripyrochlore-(Ce)] in crystal-bearing pegmatites (Kent, Central Kazakhstan). *Trudy Mineral. Muzeya Akad. Nauk SSSR*, 24, 226–228 (in Russian). (4) (1976) *Chem. Abs.*, 85, 160 (abs. ref. 3). (5) Van Wambeke, L. (1980) Latrappite and ceripyrochlore, new minerals for the Federal Republic of Germany. *Neues Jahrb. Mineral.*, Monatsh., 171–174.

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