

Yttrpyrochlore-(Y)

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Crystal Data: Cubic; metamict. *Point Group:* $[4/m \bar{3} 2/m]$ (by analogy to the pyrochlore group). Massive.**Physical Properties:** *Fracture:* Conchoidal. *Tenacity:* [Brittle.] *Hardness* = 4.5–5
D(meas.) = 3.60–3.80 D(calc.) = [4.07] Radioactive.**Optical Properties:** Semitransparent. *Color:* Chocolate-brown. *Luster:* Vitreous to adamantine.*Optical Class:* Isotropic. $n = 1.830$ – 1.835 **Cell Data:** *Space Group:* $[Fd\bar{3}m]$ after heating at 1100 °C. $a = 10.0$ – 10.34 $Z = 8$ **X-ray Powder Pattern:** Alakurtti, Russia; after heating at 1100 °C.
2.975 (10), 1.695 (9), 1.488 (7), 3.152 (5), 1.550 (5), 3.45 (4), 2.578 (3)**Chemistry:**

	(1)		(1)
UO ₃	9.72	Fe ₂ O ₃	4.30
Nb ₂ O ₅	37.54	MnO	0.35
Ta ₂ O ₅	5.47	MgO	0.26
SiO ₂	3.78	CaO	2.82
TiO ₂	6.29	Na ₂ O	2.43
ThO ₂	0.26	K ₂ O	0.31
Y ₂ O ₃	11.34	H ₂ O ⁺	7.77
Ce ₂ O ₃	0.66	H ₂ O ⁻	6.48
		<u>Total</u>	<u>99.78</u>

(1) Alakurtti, Russia; corresponding to $(Y, Na, Ca, U)_{1.27}(Nb, Ta, Ti, Fe)_2O_{5.40}(OH)_{0.60} \cdot 1.13H_2O$.**Mineral Group:** Pyrochlore group and subgroup; RE_A > 20% (with Y > Ce); (Nb + Ta)_B > 2Ti_B; Nb_B > Ta_B.**Occurrence:** In replacement zones in a pegmatite.**Association:** Yttrobetafite-(Y), plumbian uranpyrochlore, garnet, fergusonite, columbite, albite, muscovite.**Distribution:** From Alakurtti, northwestern Karelia, Russia.**Name:** As the YTTRium-dominant member of the *pyrochlore* group.**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 62258.**References:** (1) Hogarth, D.D. (1977) Classification and nomenclature of the pyrochlore group. *Amer. Mineral.*, 62, 403–410 [obruchevite = yttrpyrochlore-(Y)]. (2) Kalita, A.P. (1957) On the composition of obruchevite – a hydrated uranium–yttrium variety of pyrochlore. *Doklady Acad. Nauk SSSR*, 117, 120 (in Russian). (3) (1958) *Amer. Mineral.*, 43, 797 (abs. ref. 2).