Yttropyrochlore-(Y)  
(Y, Na, Ca, U)_{1–2}(Nb, Ta, Ti)_{2}(O, OH)_{7}

Crystal Data:  
Cubic; metamict.  
Point Group: [4/m 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: [Fd3m] 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:  

\[
\begin{array}{ccc}
\text{UO}_3 & 9.72 & \text{Fe}_2\text{O}_3 & 4.30 \\
\text{Nb}_2\text{O}_5 & 37.54 & \text{MnO} & 0.35 \\
\text{Ta}_2\text{O}_5 & 5.47 & \text{MgO} & 0.26 \\
\text{SiO}_2 & 3.78 & \text{CaO} & 2.82 \\
\text{TiO}_2 & 6.29 & \text{Na}_2\text{O} & 2.43 \\
\text{ThO}_2 & 0.26 & \text{K}_2\text{O} & 0.31 \\
\text{Y}_2\text{O}_3 & 11.34 & \text{H}_2\text{O}^+ & 7.77 \\
\text{Ce}_2\text{O}_3 & 0.66 & \text{H}_2\text{O}^- & 6.48 \\
\hline
\text{Total} & 99.78 \\
\end{array}
\]

(1) Alakurtti, Russia; corresponding to \((Y, Na, Ca, U)_{1–2}(Nb, Ta, Ti, Fe)_{2}O_{5.40}(OH)_{0.60} \cdot 1.13\text{H}_2\text{O}\).

Mineral Group:  
Pyrochlore group and subgroup; \(\text{RE}_A > 20\%\) (with \(Y > \text{Ce}\)); \((\text{Nb} + \text{Ta})_B > 2\text{Ti}_B\); \(\text{Nb}_B > \text{Ta}_B\).

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:  
Amer. Mineral., 62, 403–410 [obruchevite = yttropyrochlore-(Y)].  
(3) (1958) Amer. Mineral., 43, 797 (abs. ref. 2).