Hydroxyplumbopyrochlore \((\text{Pb}_{1.5\,\square_{0.5}}\text{Nb}_{2}\text{O}_6(\text{OH}))\)

**Crystal Data:** Cubic. *Point Group:* 4/m 3 2/m. As euhedral octahedral crystals to 0.06 mm slightly modified by rhombododecahedra or cubes.

**Physical Properties:** *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Conchoidal. *Hardness:* ≈ 5.5  
D(meas.) = n.d. D(calc.) = 6.474

*Optical Class:* Isotropic. *n*(calc.) = 2.26(3)

**Cell Data:** *Space Group:* Fd\(\overline{3}\) m.  
a = 10.5456(6)  
Z = 8

**X-Ray Diffraction Pattern:** Jabal Sayid granitic complex, Arabian Shield, Saudi Arabia.  
3.043 (100), 1.591 (43), 2.636 (42), 1.862 (36), 1.183 (12), 6.051 (8), 1.521 (8)

**Chemistry:**

\[
\begin{align*}
\text{CaO} & \quad 0.32 \\
\text{SrO} & \quad 0.16 \\
\text{FeO} & \quad 0.17 \\
\text{Ce}_2\text{O}_3 & \quad 0.07 \\
\text{Pr}_2\text{O}_3 & \quad 0.02 \\
\text{PbO} & \quad 51.69 \\
\text{Nb}_2\text{O}_5 & \quad 40.06 \\
\text{SiO}_2 & \quad 0.05 \\
\text{TiO}_2 & \quad 1.68 \\
\text{Ta}_2\text{O}_5 & \quad 4.74 \\
\text{H}_2\text{O} & \quad [0.95] \\
\text{F} & \quad 0.0 \\
\text{Total} & \quad 99.90.
\end{align*}
\]

(1) Jabal Sayid granitic complex, Arabian Shield, Saudi Arabia; average electron microprobe analysis supplemented by Raman spectroscopy, H\(_2\)O calculated from structure; corresponds to \(\text{A}^{(\text{Pb}_{1.34}\text{Ca}_{0.03}\text{Fe}_{0.00}\text{Sr}_{0.01}\text{□}_{0.68})\text{□}_{2-2.00}\text{B}^{(\text{Nb}_{1.75}\text{Ti}_{0.12}\text{Ta}_{0.12}\text{Si}_{0.01})\text{□}_{2-2.00}\text{O}_6\text{□}\text{(OH)}_{0.53}\text{□}_{0.08}\text{□}_{0.39})\text{□}_{2-1.00}}\).

**Mineral Group:** Pyrochlore supergroup, pyrochlore group.

**Occurrence:** From pegmatite-aplite in a peralkaline granitic complex.

**Association:** Quartz, microcline, “biotite,” rutile, zircon, calcite, rhodochrosite, columbite-(Fe), goethite, thorite, bastnäsite-(Ce), xenotime-(Y), samarskite-(Y), euxenite-(Y), “hydropyrochlore,” fluorapatopyrochlore.

**Distribution:** From the Jabal Sayid peralkaline granitic complex, Arabian Shield, Saudi Arabia.

**Name:** The first prefix, hydroxy, indicates dominant OH at the Y site, the second prefix, plumbo, indicates the dominant lead in the A site of a member of the pyrochlore subgroup.

**Type Material:** Geological Museum of China, Beijing, China (M13239).

**References:**  