

Hydroxyplumbopyrochlore

Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. 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 Properties: Transparent. *Color:* Pale yellow to pale brown. *Streak:* White.

Luster: Adamantine.

Optical Class: Isotropic. $n(\text{calc.}) = 2.26(3)$

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

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:	(1)
CaO	0.32
SrO	0.16
FeO	0.17
Ce ₂ O ₃	0.07
Pr ₂ O ₃	0.02
PbO	51.69
Nb ₂ O ₅	40.06
SiO ₂	0.05
TiO ₂	1.68
Ta ₂ O ₅	4.74
H ₂ O	[0.95]
F	0.0
Total	99.90.

(1) Jabal Sayid granitic complex, Arabian Shield, Saudi Arabia; average electron microprobe analysis supplemented by Raman spectroscopy, H₂O calculated from structure; corresponds to $A(\text{Pb}_{1.34}\text{Ca}_{0.03}\text{Fe}_{0.01}\text{Sr}_{0.01}\square_{0.61})_{\Sigma=2.00}B(\text{Nb}_{1.75}\text{Ti}_{0.12}\text{Ta}_{0.12}\text{Si}_{0.01})_{\Sigma=2.00}X\text{O}_6^Y[(\text{OH})_{0.53}\text{O}_{0.08}\square_{0.39}]_{\Sigma=1.00}$.

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), “hydroxyrochlore,” fluornatrochlore.

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: (1) Li, T., Z. Li, G. Fan, H. Fan, J. Zhong, N.S. Jahdali, M. Qin, A.M. Jehani, F. Wang, and M.M. Nahdi (2020) Hydroxyplumbopyrochlore, (Pb_{1.5},□_{0.5})Nb₂O₆(OH), a new member of the pyrochlore group from Jabal Sayid, Saudi Arabia. *Mineral. Mag.*, 84(5), 785-790. (2) (2021) *Amer. Mineral.*, 106, 1187-1189 (abs. ref. 1).