

Hydroxykenopyrochlore



Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. As parts of irregular grains to 0.1 mm.

Physical Properties: *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Uneven. Hardness = 4.5
D(meas.) = n.d. D(calc.) = 4.36 Nonfluorescent.

Optical Properties: Translucent. *Color:* Lemon-yellow to yellow. *Streak:* White.
Luster: Vitreous to sub-adamantine.
Optical Class: Isotropic. $n(\text{calc.}) = 2.02$

Cell Data: *Space Group:* $Fd\bar{3}m$. $a = 10.590(5)$ $Z = 2$

X-Ray Diffraction Pattern: Araxá, Minas Gerais, Brazil.
3.05 (100), 1.870 (56), 1.594 (50), 6.06 (49), 2.64 (29), 3.18 (27), 1.213 (15)

Chemistry:	(1)		(1)
La ₂ O ₃	0.90	Na ₂ O	0.29
Ce ₂ O ₃	23.05	K ₂ O	0.50
Pr ₂ O ₃	0.43	Nb ₂ O ₅	47.98
Nd ₂ O ₃	1.57	P ₂ O ₅	1.79
Sm ₂ O ₃	0.13	Al ₂ O ₃	1.11
Y ₂ O ₃	0.07	Fe ₂ O ₃	1.93
UO ₂	0.50	ZrO ₂	1.25
ThO ₂	4.25	F	0.77
BaO	4.10	-O = F	0.33
PbO	0.24	<u>H₂O</u>	<u>[5.06]</u>
CaO	0.45	Total	102.88
TiO ₂	6.84		

(1) Araxá, Minas Gerais, Brazil; average electron microprobe analysis supplemented by Raman spectroscopy, H₂O calculated; corresponds to $(\square_{1.117}\text{Ce}_{0.532}\text{Nd}_{0.035}\text{La}_{0.021}\text{Pr}_{0.010}\text{Sm}_{0.003}\text{Y}_{0.00}\text{Ba}_{0.101}\text{Ca}_{0.030}\text{Pb}_{0.004}\text{Th}_{0.061}\text{U}_{0.007}\text{K}_{0.040}\text{Na}_{0.036})_{\Sigma=2}(\text{Nb}_{1.368}\text{Ti}_{0.325}\text{P}_{0.095}\text{Fe}_{0.091}\text{Al}_{0.082}\text{Zr}_{0.039})_{\Sigma=2}[\text{O}_{4.719}(\text{OH})_{1.281}]_{\Sigma=6}[(\text{OH})_{0.846}\text{F}_{0.154}]$.

Mineral Group: Pyrochlore supergroup.

Occurrence: In Nb-ore from weathered alkaline carbonatite.

Association: Ba-bearing hydrokenopyrochlore, baryte, magnetite.

Distribution: From the Nb-ore deposit of Companhia Brasileira de Metalurgia e Mineração (CBMM), Araxá, Minas Gerais, Brazil.

Name: Prefixes identify a member of the *pyrochlore* group with dominant hydroxyl ion (OH)⁻ at the Y position and vacancy at the A position.

Type Material: National Museum of Nature and Science, Tokyo, Japan (NSM-MF16011).

References: (1) Miyawaki, R., K. Momma, S. Matsubara, T. Sano, M. Shigeoka, and H. Horiuchi (2021) Hydroxykenopyrochlore, $(\square, \text{Ce}, \text{Ba})_2(\text{Nb}, \text{Ti})_2\text{O}_6(\text{OH}, \text{F})$, a new member of the pyrochlore group from Araxá, Minas Gerais, Brazil. *Can. Mineral.*, 59(3), 589-601.