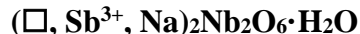


Hydrokenopyrochlore



Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. As porous, subhedral octahedral crystals to 1 mm.

Physical Properties: *Cleavage:* n.d. *Tenacity:* Brittle. *Fracture:* Irregular. *Hardness* = n.d. *D(meas.)* = n.d. *D(calc.)* = 5.984

Optical Properties: [Translucent.] *Color:* Tan to beige. *Streak:* White. *Luster:* Resinous. *Optical Class:* Isotropic. *n(calc.)* = 2.074

Cell Data: *Space Group:* $Fd\bar{3}m$. *a* = 10.4887(8) *Z* = 8

X-Ray Diffraction Pattern: Sahatany Pegmatite Field, Antananarivo Province, Madagascar. 3.136 (s), 3.006 (s), 1.846 (s), 2.010 (ms), 1.588 (ms), 1.509 (m), 6.00 (w)

Chemistry:	(1)	(2)
WO ₃	8.14	
Sb ₂ O ₃	[11.37]	
Sb ₂ O ₅	[1.71]	
Nb ₂ O ₅	44.09	88.06
Ta ₂ O ₅	13.97	
SiO ₂	0.51	
SnO ₂	0.21	
CaO	0.86	
MnO	0.04	
Na ₂ O	1.79	
Cs ₂ O	14.47	
H ₂ O	[2.23]	11.94
Total	100.64	100.00

(1) Sahatany Pegmatite Field, Antananarivo Province, Madagascar; average electron microprobe analysis supplemented by micro-Raman spectroscopy, H₂O, Sb₂O₃, and Sb₂O₅ calculated from structure; corresponds to $A(\square_{1.32}\text{Sb}^{3+}_{0.35}\text{Na}_{0.26}\text{Ca}_{0.07})_{\Sigma=2.00}B(\text{Nb}_{1.47}\text{Ta}_{0.28}\text{W}_{0.16}\text{Sb}^{5+}_{0.05}\text{Si}_{0.04})_{\Sigma=2.00}X\text{O}_6Y[(\text{H}_2\text{O})_{0.55}\text{Cs}_{0.45}]_{\Sigma=1.00}$. (2) $\square_2\text{Nb}_2\text{O}_4(\text{OH})_2 \cdot \text{H}_2\text{O}$.

Mineral Group: Pyrochlore supergroup, pyrochlore group; with $(\square, \#)_2\text{Nb}_2\text{O}_6 \cdot \text{H}_2\text{O}$, where “#” indicates a minor substituent needed for charge balance.

Occurrence: From a Li-Cs-Ta-type pegmatite intruded into dolomitic marble.

Association: Quartz, orthoclase, Li-rich mica, hübnerite, a heftetjernite-like mineral, stibiotantalite, tourmaline.

Distribution: From the Antandrokomby pegmatite, near Mt. Ibity, southern Sahatany Pegmatite Field, Manandona Valley, Vakinankaratra region, Antananarivo Province, Madagascar.

Name: The first prefix, *hydro*, indicates dominant H₂O at the Y site, the second prefix, *keno*, indicates the dominant vacancy in the A site of a member of the *pyrochlore* subgroup.

Type Material: Geology Museum, University of Lausanne, Switzerland (080141 and 080142) and the Natural History Museum, University of Pisa, Italy (19905).

References: (1) Biagioni, C., N. Meisser, F. Nestola, M. Pasero, M. Robyra, P. Roth, C. Schnyder, and R. Gieré (2018) Hydrokenopyrochlore, $(\square, \#)_2\text{Nb}_2\text{O}_6 \cdot \text{H}_2\text{O}$, a new species of the pyrochlore supergroup from the Sahatany Pegmatite Field, Antananarivo Province, Madagascar. *Eur. J. Mineral.*, 30(4), 869-876. (2) (2021) *Amer. Mineral.*, 106, 1187-1189 (abs. ref. 1).