

Hydroxymanganopyrochlore

Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. Crystals octahedral, to 0.7 mm.

Physical Properties: *Cleavage:* None. *Fracture:* n.d. *Tenacity:* Brittle. *Hardness* = n.d.
D(meas.) = n.d. D(calc.) = 5.398

Optical Properties: Translucent. *Color:* Dark brown, black, with red reflexes. *Streak:* n.d.
Luster: n.d.
Optical Class: n.d. $n(\text{calc.}) = 2.29$

Cell Data: *Space Group:* $Fd\bar{3}m$. $a = 10.2523(2)$ $Z = 8$

X-ray Powder Pattern: Mendig, Laacher See area, Eifel volcanic region, Germany.
2.969 (100), 1.816 (47), 2.569 (40), 1.548 (40), 1.481 (14), 1.178 (14), 2.358 (12)

Chemistry:	(1)
Na ₂ O	2.48
CaO	3.65
MnO	8.22
Fe ₂ O ₃	3.39
La ₂ O ₃	3.22
Ce ₂ O ₃	6.76
Nd ₂ O ₃	0.92
TiO ₂	15.43
ThO ₂	22.58
UO ₂	2.42
Nb ₂ O ₅	29.42
F	0.49
H ₂ O	[1.34]
<u>-O=F₂</u>	<u>0.21</u>
Total	100.11

(1) Mendig, Laacher See area, Eifel volcanic region, Germany; average of 7 electron microprobe analyses, H₂O calculated for charge balance; corresponding to
 $(\text{Mn}_{0.51}\text{Th}_{0.37}\text{Na}_{0.35}\text{Ca}_{0.29}\text{Ce}_{0.18}\text{La}_{0.09}\text{Nd}_{0.02}\text{U}_{0.04})_{\Sigma=1.85}(\text{Nb}_{0.97}\text{Ti}_{0.85})_{\Sigma=2.01}\text{O}_6[(\text{OH})_{0.65}\text{O}_{0.24}\text{F}_{0.11}]$.

Mineral Group: Pyrochlore group.

Occurrence: In small miarolitic cavities in sanidinite as a late pneumatolytic phase.

Association: Sanidine, nosean, biotite, tephroite, jacobsite, and spinellides of the gahnite–hercynite series.

Distribution: From a pumice quarry, near Mendig, Laacher See area, Eifel volcanic region, Rheinland-Pfalz, Germany.

Name: Reflects the mineral's identity as a member of the *pyrochlore* group with dominant OH (*hydroxyl*) and Mn²⁺ respectively in the Y and A structural sites.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia.

References: (1) Chukanov, N.V., G. Blass, N.V. Zubkova, I.V. Pekov, D.Y. Pushcharovskii, and H. Prinz (2013) Hydroxymanganopyrochlore: A New Mineral from the Eifel Volcanic Region, Germany. *Doklady Akademii Nauk*, 449(2), 215-218. English translation: *Doklady Earth Sciences*, 2013, 449(1), 342-345. (2) (2014) *Amer. Mineral.*, 99, 245-246 (abs. ref. 1).