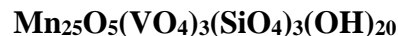


Turtmannite**Crystal Data:** Hexagonal. *Point Group:* $\bar{3} 2/m$. As flakes to 200 μm .**Physical Properties:** *Cleavage:* Perfect on {0001}. *Tenacity:* Very brittle. *Fracture:* n.d.
Hardness = n.d. D(meas.) = 3.6-4.0 D(calc.) = 3.80(4) Nonfluorescent.**Optical Properties:** Transparent. *Color:* Bright yellow. *Streak:* Colorless. *Luster:* Vitreous.
Optical Class: Uniaxial (-). $\omega = 1.787(3)$ $\varepsilon = \text{n.d.}$ $n(\text{calc}) = 1.80(2)$ **Cell Data:** *Space Group:* $R\bar{3}c$. $a = 8.259(2)$ $c = 204.3(3)$ $Z = 12$ (variant 2)**X-ray Powder Pattern:** Turtmann Valley, Valais, Switzerland.

1.561 (100), 2.69 (80), 2.38 (80), 2.43 (60), 2.99 (40), 2.83 (40), 2.93 (20)

Chemistry:	(1)
V ₂ O ₅	8.09
As ₂ O ₅	7.47
SiO ₂	8.61
CaO	0.08
MgO	5.27
MnO	57.29
BaO	0.05
CoO	0.13
NiO	0.21
ZnO	0.06
Al ₂ O ₃	0.69
<u>H₂O</u>	<u>[8.06]</u>
Total	96.05

(1) Turtmann Valley, Valais, Switzerland; average electron microprobe analysis, H₂O calculated for 20.5 H pfu.**Occurrence:** In metamorphosed (upper greenschist facies) jacobsite-rich Fe-Mn ores in paleokarst.**Association:** Jacobsite, kutnohorite, baryte, tephroite, spessartite.**Distribution:** In the Turtmann Valley, Valais, Switzerland.**Name:** For the *Turtmann* Valley that hosts the type locality.**Type Material:** "Musée Cantonal de Géologie," Lausanne, Switzerland (MGL53593, MGL58732).**References:** (1) Brugger, J., T. Armbruster, N. Meisser, C. Hejny, and B. Grobety (2001) Description and crystal structure of turtmannite, a new mineral with a 68 Å period related to mcgovernite. *Amer. Mineral.*, 86, 1494-1505.