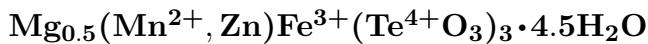


Kinichilite

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Crystal Data: Hexagonal. Point Group: $6/m$. As imperfect hexagonal prisms, to 2 mm, with curved {0001}.

Physical Properties: Tenacity: "Fragile". Hardness = "Soft". $D(\text{meas.}) = \text{n.d.}$ $D(\text{calc.}) = 4.11$

Optical Properties: Translucent. Color: Dark brown. Streak: Brown.

Luster: Subadamantine.

Optical Class: Uniaxial (+). Pleochroism: Weak; pale brown to yellowish brown. $\omega = > 1.8$ $\epsilon = > 1.8$

Cell Data: Space Group: $P6_3/m$. $a = 9.451(7)$ $c = 7.687(9)$ $Z = 2$

X-ray Powder Pattern: Kawazu mine, Japan.

4.079 (100), 8.15 (90), 2.790 (85), 2.861 (50), 3.824 (35), 2.966 (30), 1.735 (20)

Chemistry:

	(1)	(2)
TeO ₂	58.4	65.05
SeO ₂	0.14	
Fe ₂ O ₃	9.7	10.85
MnO	5.5	4.82
ZnO	5.9	5.53
MgO	2.77	2.74
Na ₂ O	0.02	
H ₂ O	n.d.	11.01
Total		100.00

(1) Kawazu mine, Japan; by electron microprobe, total Fe as Fe₂O₃, Fe³⁺ confirmed by Mössbauer spectroscopy; corresponds to $\text{Mg}_{0.55}(\text{Mn}^{2+}, \text{Zn}_{0.54})_{\Sigma=1.16}\text{Fe}_{0.97}^{3+}(\text{TeO}_3)_{2.92} \cdot 4.5\text{H}_2\text{O}$.

(2) $\text{Mg}_{0.5}(\text{Mn}, \text{Zn})\text{Fe}(\text{TeO}_3)_3 \cdot 4.5\text{H}_2\text{O}$ with Mn:Zn = 1:1.

Occurrence: A very rare mineral in low-temperature hydrothermal Au–Ag–Te quartz veins.

Association: Quartz.

Distribution: From the Kawazu mine, three km north of Shimoda, Izu Peninsula, Shizuoka Prefecture, Japan.

Name: Honors Dr. Kin-ichi Sakurai (1912–), prominent collector and amateur mineralogist, for his descriptions of tellurium minerals from the Kawazu mine, Japan.

Type Material: National Science Museum, Tokyo, Japan, M-23380; National Museum of Natural History, Washington, D.C., USA, 164269.

References: (1) Hori, H., E. Koyama, and K. Nagashima (1981) Kinichilite, a new mineral from the Kawazu mine, Shimoda city, Japan. Mineral. J. (Japan), 10, 333–337. (2) (1982) Amer. Mineral., 67, 623 (abs. ref. 1). (3) Miletich, R. (1995) Crystal chemistry of the microporous tellurite minerals zemannite and kinichilite, $\text{Mg}_{0.5}[\text{Me}^{2+}\text{Fe}^{3+}(\text{TeO}_3)_3] \cdot 4.5\text{H}_2\text{O}$, ($\text{Me}^{2+} = \text{Zn}, \text{Mn}$). Eur. J. Mineral., 7, 509–523.