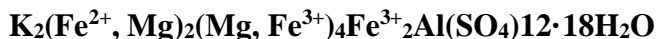


Pertlikite

Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. As crystals to 1 cm.

Physical Properties: *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Conchoidal. Hardness = n.d. $D(\text{meas.}) = 2.59(3)$ $D(\text{calc.}) = 2.56(1)$ Non-fluorescent.

Optical Properties: Translucent. *Color:* Dark olive-green to black. *Streak:* Grayish green.

Luster: n.d.

Optical Class: Uniaxial (-). $\omega = 1.590(2)$ $\varepsilon = 1.586(2)$

Cell Data: *Space Group:* $I4_1/acd$. $a = 19.2080(3)$ $c = 27.2158(7)$ $Z = 8$

X-Ray Diffraction Pattern: Madeni Zakh, Iran.

3.396 (100), 3.038 (39), 2.848 (31), 2.078 (29), 5.543 (28), 3.136 (21), 2.534 (21)

Chemistry:	(1)
K ₂ O	4.80
Na ₂ O	0.02
Al ₂ O ₃	2.64
FeO	[4.20]
Fe ₂ O ₃	[14.78]
ZnO	0.04
MgO	6.26
MnO	0.97
SO ₃	49.58
<u>H₂O</u>	<u>16.73</u>
Total	100.02

(1) Madeni Zakh, Iran; average electron microprobe analysis supplemented by Mössbauer spectroscopy to partition total iron to FeO and Fe₂O₃; corresponds to $(\text{K}_{1.98}\text{Na}_{0.01})_{\Sigma=1.99}^{M2}(\text{Fe}^{2+}_{1.13}\text{Mg}_{0.49}\text{Mn}^{2+}_{0.27}\text{Fe}^{3+}_{0.10}\text{Zn}_{0.01})_{\Sigma=2.00}^{M3}(\text{Mg}_{2.52}\text{Fe}^{3+}_{1.49})_{\Sigma=4.01}^{M1}\text{Fe}^{3+}_{2.00}\text{Al}_{1.00}(\text{SO}_4)_{12.00}\cdot 18\text{H}_2\text{O}$.

Mineral Group: Voltaite group.

Occurrence: In a pyrite-bearing trachytic eruptive rock, and probably formed after the oxidation of pyrite.

Association: Metavoltine, botryogen, pyrite, alunite.

Distribution: From Madeni Zakh, Iran.

Name: Honors Franz *Pertlik* (b. 1943), Professor of Mineralogy and Crystallography, University of Vienna, Austria, for his contributions to the crystal chemistry of minerals.

Type Material: Institute for Mineralogy and Crystallography, University of Vienna, Austria (7813), National Museum of Natural History, Washington, D.C. (NMNH174370) and the Museum of Natural History, Harvard University, Cambridge, Massachusetts (135547), USA.

References: (1) Ertl, A., M.D. Dyar, J.M. Hughes, F. Brandstätter, M.E. Gunter, M. Prem, R.C. Peterson (2008) Pertlikite, a new tetragonal Mg-rich member of the voltaite group from Madeni Zakh, Iran. *Can. Mineral.*, 46, 661-669.