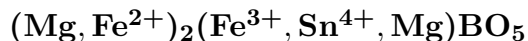


Magnesiohulsite

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Crystal Data: Monoclinic. *Point Group:* $2/m$. As needlelike crystals, elongated along [010], to 0.4 mm, in tufted aggregates. *Twining:* On {101}.

Physical Properties: *Tenacity:* Brittle. Hardness = [6] VHN = 689–825 (50 g load).
D(meas.) = 4.18(2) D(calc.) = 4.15

Optical Properties: Opaque, transparent in thin section. *Color:* Black; bluish gray to grayish white in reflected light. *Streak:* Dark brown. *Luster:* Submetallic.

Optical Class: Biaxial. *Pleochroism:* Strong, X = dark brown; Y = dark green. $\alpha = 1.88$
 $\beta = \text{n.d.}$ $\gamma = 1.95$ $2V(\text{meas.}) = \text{n.d.}$ *Anisotropism:* Strong.

Cell Data: *Space Group:* $P2/m$. $a = 10.70(10)$ $b = 3.06(3)$ $c = 5.45(5)$ $\beta = 94.6(5)^\circ$
 $Z = 2$

X-ray Powder Pattern: Qiliping, China.

2.665 (10), 2.563 (9), 2.467 (8), 2.018 (8), 5.32 (7), 2.129 (6), 1.9653 (6)

Chemistry:

	(1)
SiO ₂	0.45
TiO ₂	0.05
SnO ₂	12.90
B ₂ O ₃	16.59
Al ₂ O ₃	0.05
Fe ₂ O ₃	20.97
FeO	20.86
MnO	0.90
MgO	25.75
CaO	0.18
H ₂ O	0.00
Total	98.70

(1) Qiliping, China; corresponds to $(\text{Mg}_{1.25}\text{Fe}_{0.66}^{2+}\text{Mn}_{0.03}\text{Ca}_{0.01})_{\Sigma=1.95}(\text{Fe}_{0.60}^{3+}\text{Sn}_{0.19}\text{Mg}_{0.19}\text{Al}_{0.01}\text{Ti}_{0.01})_{\Sigma=1.00}\text{B}_{1.06}\text{O}_5$.

Occurrence: In a magnesium skarn borate deposit at the contact between granite and calcite–dolomite rocks.

Association: Szaibélyite, kotoite, fluoborite, stannian ludwigite, sakhaite, dolomite, calcite.

Distribution: From Daiy Mountain, Qiliping, Changning Co., Hunan Province, China.

Name: As the *magnesium* analog of *hulsite*.

Type Material: n.d.

References: (1) Yang Guangming, Peng Zhizhong, and Pan Zhaolu (1985) Magnesiohulsite – a new tin-rich borate mineral. *Acta Mineral. Sinica*, 5(2), 97–101 (in Chinese with English abs.). (2) (1988) *Amer. Mineral.*, 73, 929 (abs. ref. 1). (3) Zhao Wenxia, Yang Guangming, and Pan Zhaolu (1991) Electron diffraction analysis of magnesiohulsite twin. *Acta Petrologica et Mineralogica*, 10(4), 339–344 (in Chinese with English abs.).