

# Pseudosinhalite

# Mg<sub>2</sub>Al<sub>3</sub>B<sub>2</sub>O<sub>9</sub>(OH)

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**Crystal Data:** Monoclinic. *Point Group:* 2/m. As a topotactic replacement of sinhalite grains. *Twinning:* Polysynthetic on a very fine scale, observed optically.

**Physical Properties:** *Fracture:* Conchoidal. Hardness = n.d. D(meas.) = n.d.  
D(calc.) = 3.508

**Optical Properties:** Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous.  
*Optical Class:* Biaxial (-). *Orientation:* Z = b.  $n = 1.72$   $\alpha = 1.691(1)$  (synthetic)  
 $\beta = 1.713(1)$   $\gamma = 1.730(1)$   $2V(\text{meas.}) = 80^\circ$

**Cell Data:** *Space Group:* [P2<sub>1</sub>/c] (by analogy to synthetic).  $a = 7.49(1)$   $b = 4.33(1)$   
 $c = 9.85(1)$   $\beta = 110.7(1)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Tayozhnoye deposit, Russia.

2.14 (100), 1.625 (100), 2.102 (60), 3.21 (40), 2.61 (40), 1.607 (40), 1.399 (40)

## Chemistry:

	(1)	(2)
B <sub>2</sub> O <sub>3</sub>	[21.75]	22.30
Al <sub>2</sub> O <sub>3</sub>	46.88	48.99
FeO	1.99	
MgO	25.12	25.82
H <sub>2</sub> O	[2.81]	2.89
Total	[98.55]	100.00

(1) Tayozhnoye deposit, Russia; by electron microprobe, average of 14 analyses; total Fe as FeO, B<sub>2</sub>O<sub>3</sub> and H<sub>2</sub>O calculated for stoichiometry; corresponds to (Mg<sub>1.98</sub>Fe<sub>0.09</sub>)<sub>Σ=2.07</sub> Al<sub>2.93</sub>B<sub>2.00</sub>O<sub>9</sub>(OH). (2) Mg<sub>2</sub>Al<sub>3</sub>B<sub>2</sub>O<sub>9</sub>(OH).

**Occurrence:** A rare mineral in a contact-metasomatic boron-rich iron deposit, a product of retrograde alteration of sinhalite in magnesium-bearing skarn.

**Association:** Forsterite, spinel, ludwigite, warwickite, suanite, szaibélyite, brucite, clinohumite, sinhalite, hydrotalcite.

**Distribution:** From the Tayozhnoye iron deposit, 550 km south of Yakutsk, Sakha, Russia.

**Name:** From the Greek for *false*, in recognition of its close relation to *sinhalite*.

**Type Material:** Institute for Mineralogy, Ruhr University, Bochum, Germany.

**References:** (1) Schreyer, W., N.N. Pertsev, O. Medenbach, M. Burchard, and D. Dettmar (1998) Pseudosinhalite: discovery of the hydrous MgAl–borate as a new mineral in the Tayozhnoye, Siberia, skarn deposit. *Mineral. Petrol.*, 133, 382–388. (2) (1999) *Amer. Mineral.*, 84, 1196–1197 (abs. ref. 1). (3) Daniels, P., S. Krosse, G. Werdling, and W. Schreyer (1997) “Pseudosinhalite”, a new hydrous MgAl–borate: synthesis, phase characterization, crystal structure, and *PT*-stability. *Mineral. Petrol.*, 128, 261–271. (4) Strunz, H. and E. Nickel (2000) Pseudosinhalite is a structural isotype of chondrodite. (2000) *Amer. Mineral.*, 85, 1828–1829.