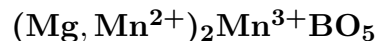


# Orthopinakiolite



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**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . As acicular crystals.

**Physical Properties:** Hardness = 6  $D(\text{meas.}) = 3.935\text{--}4.03$   $D(\text{calc.}) = 4.06$

**Optical Properties:** Opaque. *Color:* Black. *Luster:* Metallic.  
*Optical Class:* Biaxial.  $\alpha = \text{n.d.}$   $\beta = \text{n.d.}$   $\gamma = \text{n.d.}$   $2V(\text{meas.}) = \text{n.d.}$   
 $R_1\text{--}R_2: \text{n.d.}$

**Cell Data:** *Space Group:*  $Pn\bar{m}$ .  $a = 18.357(4)$   $b = 12.591(2)$   $c = 6.068(1)$   $Z = 16$

**X-ray Powder Pattern:** Långban, Sweden.  
2.59 (10), 5.17 (9), 2.52 (9), 2.03 (9), 2.20 (8), 1.523 (8), 3.01 (7)

Chemistry:	(1)
SiO <sub>2</sub>	0.78
B <sub>2</sub> O <sub>3</sub>	13.92
Fe <sub>2</sub> O <sub>3</sub>	10.52
Mn <sub>2</sub> O <sub>3</sub>	34.04
MnO	16.36
PbO	1.22
MgO	22.36
CaO	1.35
Total	100.55

(1) Långban, Sweden. (2) Do.; by electron microprobe, Mg 16.7%, Fe 5.8%, Mn 34.4%, stated to correspond to  $(\text{Mg}_{1.42}\text{Mn}_{0.43}^{2+})_{\Sigma=1.85}\text{Mn}_{0.88}^{3+}\text{Fe}_{0.22}^{3+}\text{BO}_5$ .

**Occurrence:** A very rare species formed in veinlets in granular dolomite in a metamorphosed Fe–Mn orebody.

**Association:** Hausmannite, manganophyllite, dolomite, calcite.

**Distribution:** From Långban, Värmland, Sweden.

**Name:** As an ORTHOrhombic mineral related to *pinakiolite*.

**Type Material:** Swedish Museum of Natural History, Stockholm, Sweden, 420106.

**References:** (1) Randmets, R. (1960) Orthopinakiolite, a new modification of  $\text{Mg}_3\text{Mn}^{2+}\text{Mn}_2^{3+}\text{B}_2\text{O}_{10}$  from Långban, Sweden. *Arkiv Mineral. Geol.*, 2(42), 551–555. (2) (1961) *Amer. Mineral.*, 46, 768 (abs. ref. 1). (3) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 324–325 [pinakiolite]. (3) Takéuchi, Y., N. Haga, T. Kato, and Y. Miura (1978) Orthopinakiolite,  $\text{Me}_{2.95}\text{O}_2[\text{BO}_3]$ : its crystal structure and relation to pinakiolite,  $\text{Me}_{2.90}\text{O}_2[\text{BO}_3]$ . *Can. Mineral.*, 16, 475–485.