Pertsevite-(F) Mg_2BO_3F

Crystal Data: Orthorhombic. *Point Group*: *mm*2. As anhedral grains to 150 μm.

Physical Properties: *Cleavage*: None. *Fracture*: n.d. *Tenacity*: n.d.
Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.12

Optical Properties: Transparent. *Color*: Colorless in thin section. *Streak*: Uneven.
Luster: Vitreous.
Optical Class: Biaxial (+). $\alpha = 1.609(1)$ $\beta = 1.620(1)$ $\gamma = 1.642(1)$ 2V(meas.) = 65(1)º
2V(calc.) = 71(6)º

Cell Data: *Space Group Pna*2_1. $a = 20.490(6)$ $b = 4.571(1)$ $c = 11.890(3)$ Z = 16

X-ray Powder Pattern: Tas-Khayakhtakh ridge, Republic of Sakha-Yakutia, Russia.
2.2409 (100), 1.7081 (92), 2.7425 (77), 2.4737 (49), 2.2344 (49), 2.4137 (46), 1.7053 (44)

Chemistry:

	(1)
SiO_2	8.25
B_2O_3	22.44
MgO	57.39
FeO	3.71
MnO	0.65
CaO	0.24
Al_2O_3	0.10
F	7.81
H_2O	[1.67]
- O = F	3.29
Total	98.97

(1) Tas-Khayakhtakh ridge, near Kebirin'ya Creek, Republic of Sakha-Yakutia, Russia; average electron microprobe analysis, H_2O calculated for charge balance; corresponding to $(Mg_{1.88}Fe^{2+}_{0.07}Mn_{0.01}Ca_{0.01})_{\Sigma=1.97}(B_{0.85}Si_{0.18})_{\Sigma=1.03}O_{3.21}(F_{0.54}OH_{0.24})_{\Sigma=0.78}$.

Polymorphsim & Series: Forms a series with pertsevite-(OH).

Occurrence: In kotoite-marble skarn.

Association: Calcite, spinel, löllingite, ludwigite, aluminomagnesiohulsite.

Distribution: From the Tas-Khayakhtakh ridge, Chersky Mountain System, near the mouth of Kebirin'ya Creek, a northern tributary of the Dogdo River, ~250 km east of Verkhoyansk, Republic of Sakha-Yakutia, Russia.

Name: Honors Nikolai Nikolayevich *Pertsev*, Russian mineralogist specializing in boron minerals and deposits.

Type Material: Mineralogical Collection, Institute for Geology, Mineralogy and Geophysics, Ruhr-Universität Bochum, Germany.

References: (1) Schreyer, W., T. Armbruster, H.-J. Bernhardt, and O. Medenbach (2003) Pertsevite, a new silicatian magnesioborate mineral with an end-member composition Mg_2BO_3F, in kotoite marble from east of Verkhoyansk, Sakha-Yakutia, Russia. Eur. J. Mineral., 15, 1007-1018.
(2) (2004) Amer. Mineral., 89(10), 1576 (abs. ref. 1). (3) Galuskina, I.O., L. Ottolini, M. Kadiyski, T. Armbruster, E.V. Galuskin, P. Dzierżanowski, and A. Winiarski (2010) Pertsevite-(OH), a new mineral in the pertsevite series, $Mg_2(BO_3)_{1-x}(SiO_4)_x(F,OH)_{1-x}$ ($x < 0.5$), from the Snezhnoye deposit in Sakha-Yakutia Republic, Russia. Amer. Mineral., 95(7), 953-958.