Magnesiohögbomite-6*N*12*S* $Mg_5Al_{11}TiO_{23}(OH)$

Crystal Data: Hexagonal. *Point Group*: $\bar{3}\,2/m$. Often striated, crystals display $\{11\bar{2}\,1\}$, $\{11\bar{2}\,0\}$, and {0001}. As thin tabular (epitaxial on spinel) to barrel-like prismatic crystals to 5 mm.

Physical Properties: *Cleavage*: None. *Tenacity*: Brittle. *Fracture*: Uneven. Hardness = 6.5
D(meas.) = n.d. D(calc.) = 3.87 Nonfluorescent.

Optical Properties: Translucent. *Color*: Dark brown to black. *Streak*: Brown. *Luster*: Vitreous.
Optical Class: Uniaxial (-). *n*(calc.) = 1.857 *Pleochroism*: Weak, *O* = brown, *E* = pale brown.
Visually indistinguishable from magnesiohögbomite-2*N*3*S*.

Cell Data: *Space Group: R*$\bar{3}$ *m*. *a* = 5.7194(2) *c* = 83.069(5) Z = 6

X-Ray Diffraction Pattern: DeWitts Corners area, lot 11, concession 1, Bathurst Township, Lanark County, Ontario, Canada.
2.434 (100), 2.863 (49), 2.547 (31), 2.687 (29), 2.921 (26), 1.988 (23), 2.073 (22)

Chemistry:

	(1)	(2)
MgO	13.09	23.68
ZnO	0.46	
FeO	11.91	
Fe_2O_3	6.84	
Al_2O_3	62.70	65.88
TiO_2	4.44	9.38
H_2O	0.99	1.06
Total	100.43	100.00

(1) DeWitts Corners area, lot 11, concession 1, Bathurst Township, Lanark County, Ontario, Canada; average electron microprobe analysis supplemented by FTIR spectroscopy, Fe^{2+}/Fe^{3+} calculated for charge balance; corresponding to $(Mg_{2.95}Fe^{2+}_{1.51}Al_{0.49}Zn_{0.05})_{\Sigma=5}(Al_{10.71}Fe^{3+}_{0.78}Ti_{0.51})_{\Sigma=12}O_{23}(OH)$. (2) $Mg_5Al_{11}TiO_{23}(OH)$.

Mineral Group: Högbomite supergroup, högbomite group.

Occurrence: In calcite "vein-dikes" cutting marble.

Association: Magnesiohögbomite-2*N*3*S*, spinel, corundum, diopside, magnesio-hastingsite, pargasite, clinochlore, calcite.

Distribution: From the DeWitts Corners area, lots 10 and 11, concession 1, Bathurst Township, Lanark County, Ontario, Canada.

Name: Identifies a mineral with Ti dominant in the N module (rootname högbomite), Mg dominant in the S module (prefix magnesio-), and 6 and 12 as the total number of N and S modules, respectively (hyphenated suffix 6*N*12*S*).

Type Material: Canadian Museum of Nature, Ottawa, Ontario, Canada (CMNMC 87484).

References: (1) Lykova, I., R. Rowe, G. Poirier, G. Giester, and K. Helwig (2021) Magnesiohögbomite-6*N*12*S*, $Mg_5Al_{11}TiO_{23}(OH)$, a new högbomite-group mineral from the DeWitts Corners, Ontario, Canada. Mineral. Mag., 85(3), 398-405.