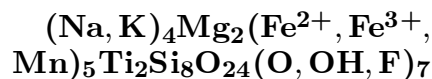


Magnesium astrophyllite



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Crystal Data: Monoclinic. *Point Group:* $2/m$. Habit not described.

Physical Properties: *Cleavage:* Very perfect on {100}, perfect on {010}. Hardness = n.d. D(meas.) = n.d. D(calc.) = [3.33]

Optical Properties: Semitransparent. *Color:* Straw-yellow. *Luster:* Vitreous. *Optical Class:* Biaxial (-). *Pleochroism:* X = bright yellow; Y = pale yellowish gray; Z = gray. *Orientation:* Y = b; Z \wedge c = -5° to -6° . *Absorption:* Z > Y > X. $\alpha = 1.658$ $\beta = [1.687]$ $\gamma = 1.710$ $2V(\text{meas.}) = 81.5^\circ\text{--}83^\circ$

Cell Data: *Space Group:* $A2/m$. a = 10.56 b = 23.00 c = 5.35 $\beta = 102^\circ$ Z = [2]

X-ray Powder Pattern: Khibiny massif, Russia.
3.38 (10), 2.548 (9), 10.1 (8), 1.463 (7), 3.80 (6), 3.079 (5), 2.763 (5)

Chemistry:	(1)
SiO ₂	37.98
TiO ₂	12.18
Al ₂ O ₃	1.11
Fe ₂ O ₃	2.95
FeO	17.91
MnO	4.00
MgO	6.39
CaO	1.15
Na ₂ O	5.38
K ₂ O	7.28
F	0.45
H ₂ O ⁺	3.44
P ₂ O ₅	0.06
-O = F ₂	0.19
Total	[100.09]

(1) Khibiny massif, Russia; original total given as 100.10%, corresponds to $(\text{Na}_{2.15}\text{K}_{1.96})_{\Sigma=4.11}\text{Mg}_{1.98}(\text{Fe}_{3.08}^{2+}\text{Mn}_{0.70}\text{Fe}_{0.46}^{3+}\text{Ca}_{0.25})_{\Sigma=4.49}\text{Ti}_{1.88}(\text{Si}_{7.81}\text{Al}_{0.27})_{\Sigma=8.08}\text{O}_{24}[(\text{OH})_{4.72}\text{O}_{1.98}\text{F}_{0.30}]_{\Sigma=7.00}$.

Mineral Group: Astrophyllite group.

Occurrence: In a differentiated alkalic massif.

Association: n.d.

Distribution: From Mts. Kukisvumchorr and Yukspor, Khibiny massif, Kola Peninsula, Russia.

Name: For *magnesium* in the formula and relation to *astrophyllite*,

Type Material: Museum of Beijing University, Beijing, China.

References: (1) Peng Chi-Chung and Ma Cher-Sheng (1963) The discovery of a new type of Si-O chain radical-X-ray analysis of astrophyllite. *Scientia Sinica*, 12, 272-276 (in Russian). (2) X-ray Laboratory, Hubei (Hupei) Geologic College (1974) The crystal chemistry of astrophyllite group minerals. *Scientia Geologia Sinica*, 1, 18-33 (in Chinese). (3) (1975) *Amer. Mineral.*, 60, 737 (abs. refs. 1 and 2). (4) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union. *Ocean Pictures, Moscow*, 133-134.

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