Lobanovite $K_2Na(Fe^{2+}_4Mg_2Na)Ti_2(Si_4O_{12})_2O_2(OH)_4$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As bladed crystals to 0.2 mm.

Physical Properties: *Cleavage*: Perfect on {001}, moderate on {010}. *Tenacity*: n.d. *Fracture*: n.d. Hardness = 3 D(meas.) = n.d. D(calc.) = 3.161

Optical Properties: Translucent. *Color*: Straw-yellow to orange. *Streak*: White to yellowish white. *Luster*: Vitreous.
Optical Class: Biaxial (–). $\alpha = 1.658$ $\beta = 1.687$ $\gamma = 1.710$ 2V(meas) = 81.5°-83°
Orientation: $Y = b$; $Z \wedge a = -5$ to –6°. *Pleochroism*: X = bright yellow, Y = pale yellowish gray, Z = gray. *Absorption*: $X > Y > Z$.

Cell Data: *Space Group*: *C*2/*m*. $a = 5.3327(2)$ $b = 23.1535(9)$ $c = 10.3775(4)$ $\beta = 99.615(1)°$ $Z = 2$

X-ray Powder Pattern: Mt. Yukspor, Khibiny massif, Kola Peninsula, Russia.
3.38 (100), 2.548 (90), 10.1 (80), 1.463 (70), 3.80 (60), 3.079 (50), 2.763 (50)

Chemistry:

	(1)
Nb_2O_5	0.64
TiO_2	13.11
SiO_2	39.72
Al_2O_3	0.24
BaO	0.13
FeO	18.86
MnO	4.21
CaO	0.65
MgO	6.72
K_2O	7.66
Na_2O	4.22
F	0.29
H_2O	[3.00]
$– O = F_2$	0.12
Total	99.33

(1) Mt. Yukspor, Kola Peninsula, Russia; average of 10 electron microprobe analyses supplemented by DTA, H_2O calculated from structure; corresponds to $(K_{1.97}Ba_{0.01})_{\Sigma=1.98}(Na_{0.65}Ca_{0.14})_{\Sigma=0.79}(Fe^{2+}_{3.18}Mg_{2.02}Na_{1.00}Mn_{0.72})_{\Sigma=6.92}(Ti_{1.99}Nb_{0.06})_{\Sigma=2.05}[(Si_{8.01}Al_{0.06})_{\Sigma=8.07}O_{24}]O_2(OH)_{4.03}F_{0.19}$.

Mineral Group: Astrophyllite supergroup.

Occurrence: In pegmatitic cavities in a differentiated alkaline igneous massif.

Association: Shcherbakovite, lamprophyllite, delindeite, wadeite, umbite, kostylevite.

Distribution: From Mt. Yukspor, Khibiny massif, Kola Peninsula, Russia.

Name: Honors Dr. Konstantin V. Lobanov, a Russian ore geologist who has worked in the Kola Peninsula for more than 40 years. Previously known under the names monoclinic astrophyllite, magnesium astrophyllite, magnesiumastrophyllite and magnesioastrophyllite.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (4708/1).

References: (1) Sokolova, E., F. Cámara, F.C. Hawthorne, E.I. Semenov, and M.E. Ciriotti (2017) Lobanovite, $K_2Na(Fe^{2+}_4Mg_2Na)Ti_2(Si_4O_{12})_2O_2(OH)_4$, a new mineral of the astrophyllite supergroup and its relation to magnesioastrophyllite. Mineral. Mag., 81(1), 175-181. (2) (2017) Amer. Mineral., 102, 1567-1568 (abs. ref. 1).