Shirokshinite $K(Mg_2Na)Si_4O_{10}F_2$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. Crystals are hexagonal prismatic along [001], typically skeletal, to 2.5 mm, and grouped in sheaflike clusters to 2.5 mm.

Physical Properties: *Cleavage*: Perfect {001}. *Fracture*: Laminated. *Tenacity*: Flexible, inelastic. Hardness = ~2.5 D(meas.) = n.d. D(calc.) = 2.922

Optical Properties: Transparent to translucent. *Color*: Colorless to pale gray, sometimes with a greenish tint. *Streak*: White. *Luster*: Vitreous to pearly.
Optical Class: Biaxial (-). α =1.526(1) β = 1.553(2) γ = 1.553(2) 2V(meas.) = -5(5)° 2V(calc.) = 0° *Orientation*: $Y = b$, $Z = \sim a$, $X \wedge c = 3(2)°$.

Cell Data: *Space Group: C*2/*m*. a = 5.269(2) b = 9.071(2) c = 10.178(4) β = 100.03(3)° Z = 2

X-ray Powder Pattern: Kirovskii mine, Kukisvumchorr Mountain, Kola Peninsula, Russia.
2.41 (100), 1.522 (100), 3.36 (90), 1.665 (80), 10.0 (70), 2.14 (60), 3.67 (60)

Chemistry:

	(1)
K_2O	10.18
Na_2O	7.01
MgO	19.17
MnO	0.23
FeO	1.54
Al_2O_3	0.24
TiO_2	0.16
SiO_2	57.64
F	9.19
- O = F	3.87
Total	101.49

(1) Kirovskii mine, Kukisvumchorr Mountain, Kola Peninsula, Russia; electron microprobe analysis supplemented by IR spectroscopy, Li calculated; corresponds to $(K_{0.90}Na_{0.02})_{\Sigma=0.92}(Mg_{1.97}Na_{0.92}Fe_{0.09}Mn_{0.01}Ti_{0.01})_{\Sigma=3.00}(Si_{3.98}Al_{0.02})_{\Sigma=4.00}O_{9.995}F_{2.01}$.

Polymorphism & Series: 1*M* polytype.

Occurrence: A late hydrothermal mineral in cavities within a hyperalkaline pegmatite embedded in ristschorrite in an alkaline massif.

Association: Microcline, kupletskite, aegirine, natrolite, lorenzenite, calcite, remondite-(Ce), donnayite-(Y), mckelveyite-(Y), galena.

Distribution: From the Kirovskii apatite mine, Kukisvumchorr Mountain, Khibiny alkaline massif, Kola Peninsula, Russia.

Name: Honors Russian geologist Nikolay Vasilievich *Shirokshin* (1809 - ?), a Captain of the Russian Mining Corps, who visited the Khibiny Mountains for field observations (summer 1834) and published the first data on the geology, petrology and geomorphology of the Khibiny massif.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia (2786/1).

References: (1) Pekov, I.V., N.V. Chukanov, G. Ferraris, G. Ivaldi, D.Yu. Pushcharovsky, and A.E. Zadov (2003) Shirokshinite, $K(NaMg_2)Si_4O_{10}F_2$, a new mica with octahedral Na from Khibiny massif, Kola Peninsula: descriptive data and structural disorder. Eur. J. Mineral., 15, 447-454.
(2) (2004) Amer. Mineral., 89(1), 251 (abs. ref. 1).